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Fisheries of Mauritania, 1974

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FISHERIES OF MAURITANIA, 1974

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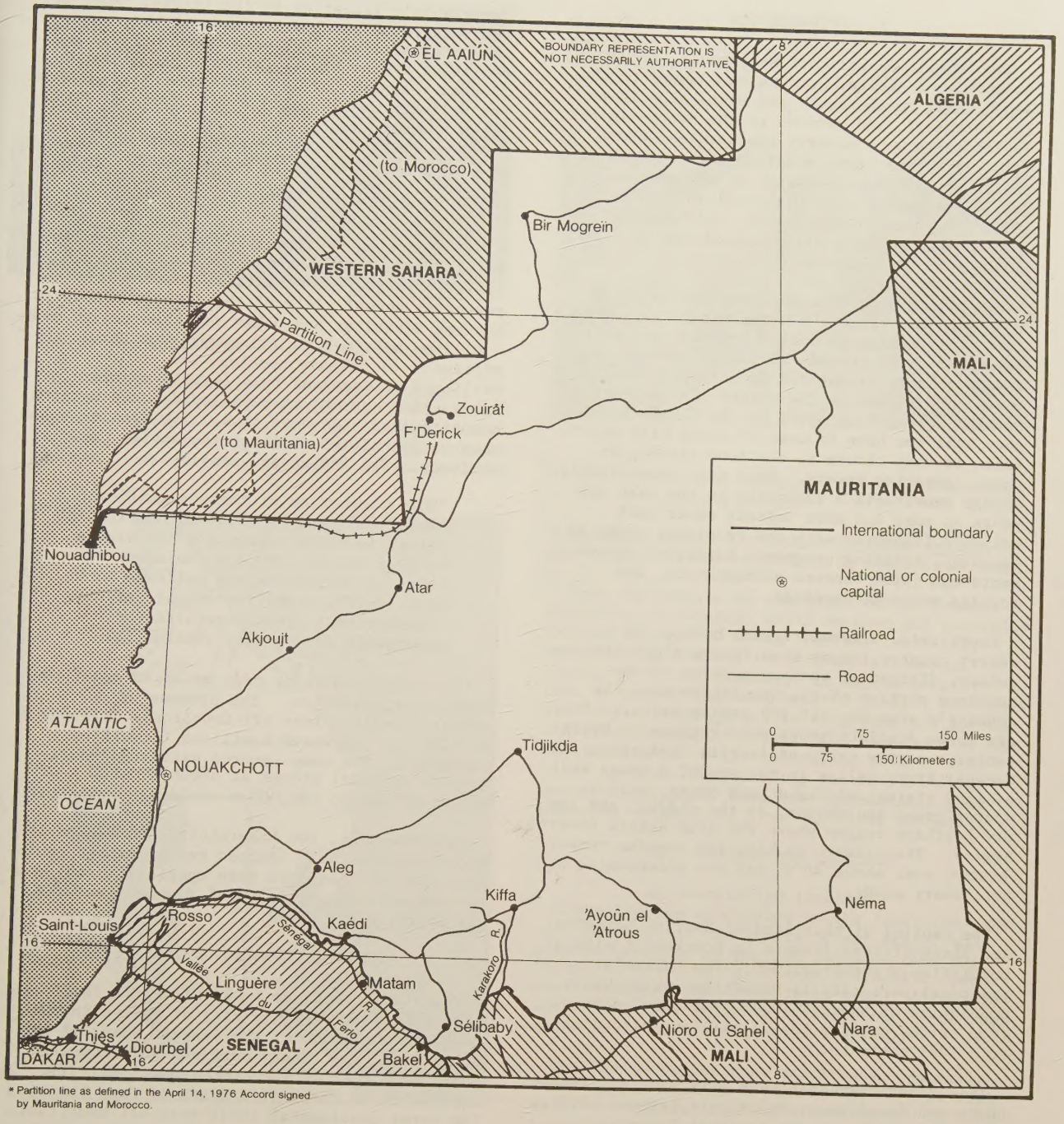
ABSTRACT

Mauritania is located along one of the richest fishing grounds in the world. Precise statistics on catches off Mauritania do not exist; however, it is known that almost the entire marine catch is caught by foreign fishermen, who land only a small portion of their catch in Mauritania. A variety of fish are caught off the Mauritania coast. Horse, yellow, and chub mackerel, sardinella, and octopus are landed in the largest quantities. The Mauritania Government has signed a number of agreements with foreign countries and fishing companies. In late 1975, the Government adopted a much tougher attitude toward the negotiation and renegotiation of these agreements.



* Partition line as defined in the April 14, 1976 Accord signed by Mauritania and Morocco.

Figure 1.--Mauritania

I. INTRODUCTION

The Islamic Republic of Mauritania, situated in northwest Africa, borders on Senegal to the south, Mali to the south and east, Algeria to the northeast, and Morocco to the north--in the region which was formerly the Spanish Sahara (fig. 1). Mauritania obtained the southern part of the Spanish Sahara (south of the town of Dakhla--formerly Villa Cisneros) in December 1975.[1/] In late February 1976, all Spanish claims to the Sahara were dropped and all Spanish forces withdrew.

The addition of this new land has naturally increased the country's size, population, coastline, and fishing grounds. The addition of the Saharan fishing grounds will have a significant effect on many of the foreign fishing fleets which once fished in the waters off the former Spanish colony from bases in the Canary Islands; they will now have to come to terms with Mauritania if they choose to continue fishing in these lucrative waters. This will dramatically change Mauritania's fisheries in the next few years as more and more vessels enter that nation's fisheries with the resulting surge in landings, training programs, bilateral agreements and joint venture arrangements, and foreign exchange earnings.

Mauritania, a former French colony, is a desert country larger than France and Spain together. (Before it took possession of the southern portion of the Spanish Sahara, the country's area was 419,299 square miles.) There are three distinct geographic regions in Mauritania: a narrow strip of fertile land along the Senegal River Valley in the south; a broad belt of sand plains and fixed sand dunes, held by sparse grass and shrubs, in the middle; and the dry northern region where the true Sahara Desert begins. The climate is hot; the daytime temperatures soar above 40°C and are accentuated by hot, dusty winds.

The capital of this land of Moorish herdsmen and black African farmers is Nouakchott with a population of about 120,000. The nation's principal port city is Nouadhibou which has a population of about 26,000. The total population of the country is 1.4 million, according to a 1975 estimate.

This report is based on a trip made to Nouakchott and Nouadhibou, Mauritania, between October 22 and 29, 1975, by the Regional Fisheries Attaché for Africa, (RFA), William B. Folsom. Unfortunately, this was before Mauritania took possession of the southern portion of the former territory of the Spanish or Western Sahara, a move which will have a significant impact on Mauritania's fisheries in the future. Much of the background information used in this report was obtained from L'Economie Ouest Africaine, published by the Banque Centrale des Etats de l'Ouest. Additional 1974 data were obtained from the Bulletin du Laboratoire des Pêches de Nouadhibou. More current information was obtained from conversations with various individuals connected with Mauritania's fisheries.

1/ The partition of the Spanish Sahara is not recognized by the U.S. Government.

II. FISHERY RESOURCES

Mauritania is located along one of the richest fishing grounds in the world. The FAO Fishery Country Profile for Mauritania reports that the potential annual yield of the fishery resources between Gibraltar and Dakar is estimated at over 3 million metric tons (t), comprising about 2.5 million t of pelagic species, 0.6 million t of demersal fish (mainly sparids), substantial amounts of cephalopods, and unknown quantities of high-seas tuna. The area also has unknown quantities of lobsters, shrimp, and molluscs. The FAO report continues:

> "What proportion of these significant resources might be found in Mauritanian waters is conjectural, but the waters between the Rio Oro and the southern coast of Mauritania are believed to be rich; furthermore, the annual catch by international fleets operating off Mauritania are already substantial."

According to a study made by an international banking organization, the biomass of pelagic species alone off Mauritania is about 2 million t, of which 1 million t could be harvested. The same source estimated Mauritania's demersal stocks at about 800,000 t of which 400,000 to 450,000 t could be harvested.

Unfortunately, the Laboratoire des Pêches in Nouadhibou has only limited resources and equipment and has therefore been unable to provide a comprehensive study on total fishery resources off Mauritania's coast.

III. FISHING GROUNDS

Mauritania controls a 987-kilometer (km) coastline extending from the city of Dakhla in the north to the mouth of the Senegal River in the south (fig. 1). Heavy surf and shifting sand banks mark most of the barren coastline (fig. 2), especially in the region south of Cape Timiris. The total continental shelf area off Mauritania (excluding the zone off the Western Sahara) has been estimated at 33,920 km^2. The entire continental shelf is estimated at between 50,000 and 60,000 km^2.

Figure 2.--Barren coastline of Mauritania.

One of Africa's largest fishing grounds is located in Mauritania, between Cap Blanc and Cap Timiris, where Levrier Bay and the Arguin Bank are situated (fig. 3). On the Arguin Bank the sea floor is sandy at depths of 25 to 75

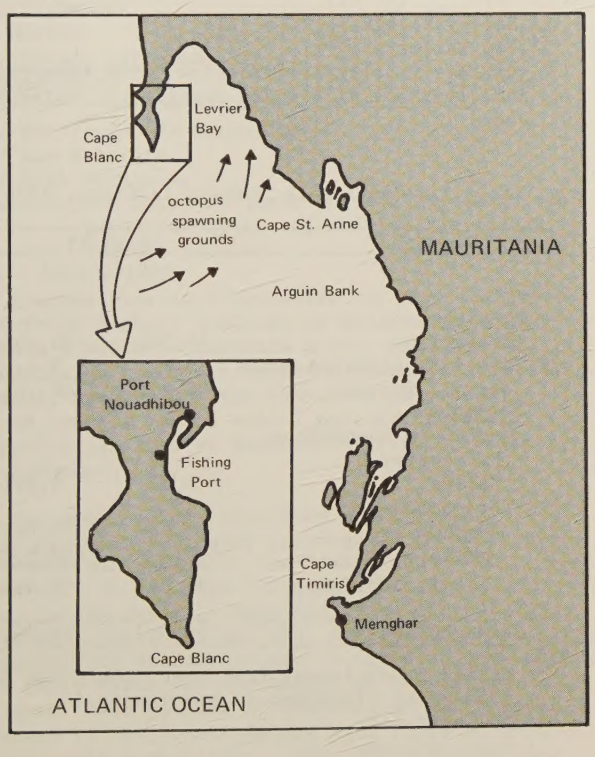


Figure 3.--Map of Levrier Bay and the Arguin Bank

meters (m). Sponges and corals occur in the shallower water, and rocks are found close to shore, especially near Cap Timiris. Between these two capes the continental shelf is from 30 to 145 km wide. The Mauritanians consider the waters over the Arguin Bank an "inland sea" and claim its fishery resources. The Bay is a prime breeding ground for octopus, especially in the Cap Blanc area where large quantities of octopus are caught (fig. 3). Levrier Bay is also

Figure 4.--Octopus being processed in Nouadhibou packing plants.

a spawning ground for meagre (Sciaena aquila, also called "corbina"), which is salted and dried.

From Cap Timiris to the mouth of the Senegal River the continental shelf narrows and generally extends only 30 to 65 km from the coastline. South of Cap Timiris the seabed is sandy at depths of 30 to 60 meters. At depths greater than 60 meters the sand becomes slimy. The shelf to a depth of 25 meters is dangerous for bottom trawling because of rocks. The remainder of the shelf, from 30 to 100 meters, is safe as the floor is sand. Approaching the Senegal River estuary, the sandy sediments become soft greenish alluvium originating from the river deposits.

IV. CATCHES AND LANDINGS

A. Mauritanian landings

Comprehensive statistics on the fisheries catch off the coast of Mauritania do not exist. Estimates prepared by the FAO indicate that the fisheries catch of Mauritania's domestic fishermen increased significantly in 1963. After the record catch of 30,700 t in 1967, the catch has declined to 55,600 t in 1974 (fig. 6).

The RFA estimates that Mauritanian fishermen landed approximately 25,000 to 30,000 t of fish in 1974. Nearly 20,000 t of the catch is unloaded at Nouadhibou. Landings of freshwater species amounted to an estimated 15,000 tons. When the 48,000 t landed by foreign fishermen are added, total Mauritanian landings in 1974 amounted to an estimated 73,000 to 78,000 t (table 1).

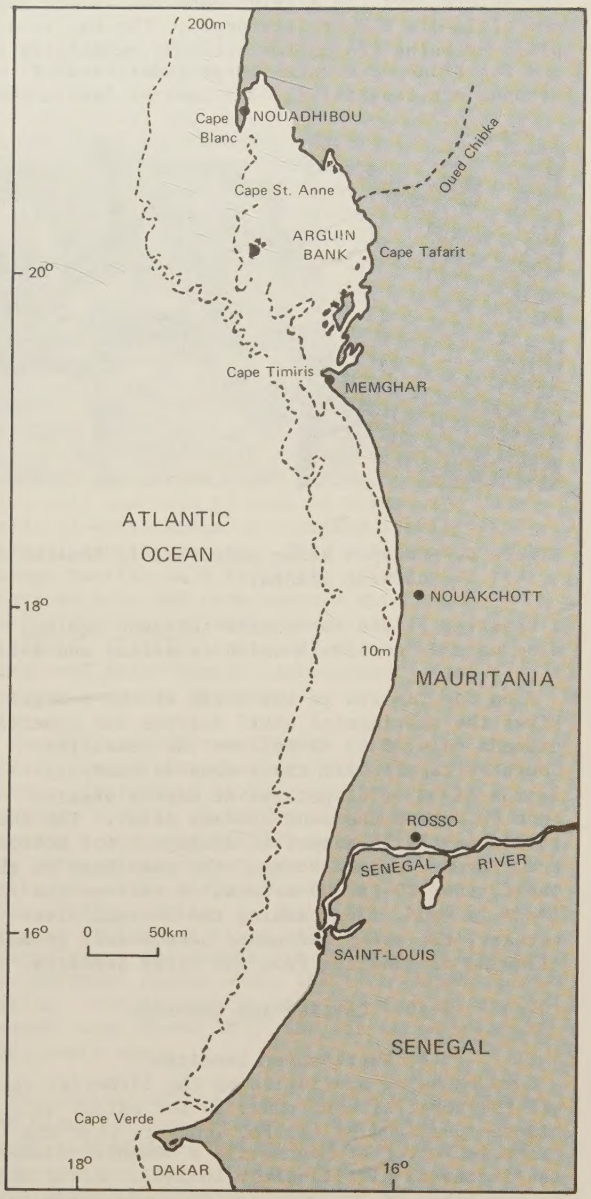
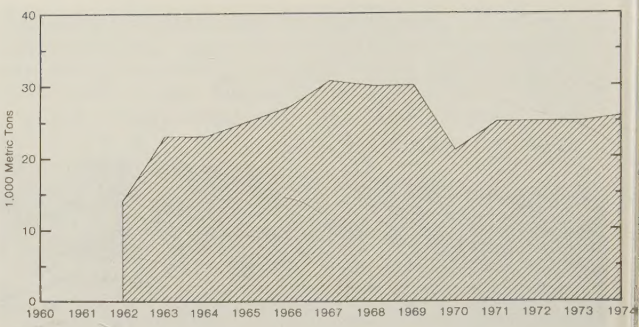


Figure 5.--Map of the Mauritania Continental Shelf.



YEAR	QUANTITY 1,000 mt	YEAR	QUANTITY 1,000 mt
1960	-- 1/	1968	30.0 2/
1961	-- 1/	1969	30.0 2/
1962	14.0 2/	1970	21.0 2/
1963	23.0 2/	1971	25.0 2/
1964	23.0 2/	1972	25.0 2/
1965	25.0 2/	1973	25.0 2/
1966	27.0 2/	1974	25.6 2/
1967	30.7 2/		

1/ Not available.
2/ FAO estimate.
Figure 6.--Mauritania fisheries catch (Source: FAO. Yearbook of Fishery Statistics, various years.

Table 1.--Mauritania fishery landings, 1974

FISHERY	QUANTITY metric tons	
Foreign		
Nouadhibou	48,201	48,201
Other Mauritanian ports	N.A.	N.A.
Total, foreign	48,201	48,201
Domestic 1/		
Landed in Nouadhibou	-	-
Freshwater	-	-
Marine	4,891	4,891
Unreported		
Freshwater	15,000	15,000
Marine	2/ 5,000	3/ 10,000
Total, artisanal	24,891	78,092
GRAND TOTAL	73,092	78,891

1/ Landed by artisanal fishermen; there are no commercial fishermen in Mauritania.
2/ Low estimate.
3/ High estimate.
Source: RFA estimate (does not include the catch in waters adjacent to the former Spanish Sahara).

B. Foreign Fishing

The actual amount of fish caught in Mauritania-claimed waters is much larger than the amount landed in Mauritania ports. Mauritania fishery officials believe that legal[1/] and illegal foreign vessels catch an additional 100,000 to 300,000 t of fish. Thus the total amount of fish caught off Mauritania is believed to be between 173,000 and 378,000 t (table 2).

Table 2.--Estimated total fisheries catch in waters off Mauritania, 1974

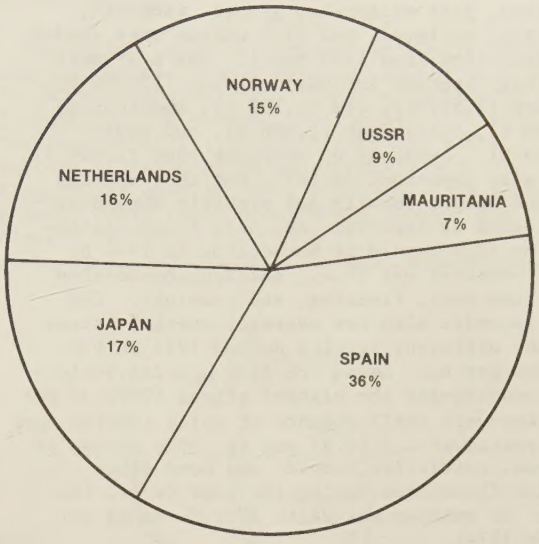
FISHERY	QUANTITY	
	metric tons	
Foreign		
Landed in Nouadhibou	48,201	48,201
Unreported[1/]	2/ 100,000	3/ 300,000
Total, foreign	148,201	348,201
Artisanal (Domestic)		
Landed in Nouadhibou		
Freshwater	-	-
Marine	4,891	4,891
Unreported		
Freshwater	(est)15,000	(est)15,000
Marine	2/ 5,000	3/ 10,000
Total, artisanal	24,891	29,891
GRAND TOTAL	1/173.092	2/378.092

1/ Not landed in Mauritania.
2/ Low estimate.
3/ High estimate.
Source: RFA estimate (does not include the catch taken in waters adjacent to the former Spanish Sahara).

Spanish vessels [2/] accounted for over one-third of total fishery landings at Nouadhibou, Mauritania's primary fisheries port. Significant quantities were also landed by Japan, the Netherlands, Norway, and the Soviet Union. Mauritania vessels landed only 7 percent of total fishery landings at Nouadhibou (fig. 7, table 3, and appendix A).

The most current available Mauritania statistics are fishery landings in the port of Nouadhibou (app. B). The Nouadhibou data, however, do not give the complete catch in Mauritania waters. Many fisheries are not included. Most, but not all, foreign vessels fishing off Mauritania are required to land part of their catch for processing at Mauritania plants. The portion of the foreign catch not landed in Mauritania is not even reported to Mauritania authorities. Also not included in the Nouadhibou data are fishery landings in Nouakchott (the second major port), as well as the fish consumed by coastal villagers.

1/Authorized by Mauritania fishery authorities.
2/Includes the Canary, former Spanish Saharan, and Spanish fleets.



TOTAL – 70,023 TONS

Note: The total for Spain includes the Canary Islands, the former Spanish Sahara, and Spain.
Figure 7.--Port of Nouadhibou fishery landings, by Mauritania and foreign fleets, 1974

Table 3.--Port of Nouadhibou fishery landings, by Mauritania and foreign fleets, 1974

COUNTRY	QUANTITY	
	metric tons	percentage
Spain		
Canary Islands	14,604	21
Spanish Sahara	7,770	11
Spain	1/2,588	4
Total	24,962	36
Japan	12,062	17
Netherlands	10,998	15
Norway	10,374	16
USSR	6,554	9
Mauritania	4,891	7
Other (Kuwait, France)	182	-
TOTAL	70,023	100

1/ Includes 1,931 tons of canned tuna imports from Spain.
Source: Laboratoire des Pêches. Direction des Pêches. Ministère du Developpement Industriel. Bulletin du Laboratoire des Pêches de Nouadhibou, No. 3, December, 1974, p. 166.

C. Species

1. Finfish

Sardines were probably the most important species landed in Nouadhibou in 1974, although exact figures are not available (39,384 t of

sardines, jack mackerels, grunts, tambours, bluefins, mullets[1], and fish wastes were landed for reduction into fish meal). The next most important species include: octopus (13,854 t), meagers (2,567 t), cod (2,108 t), smoothhound (1,938 t), cuttlefish (1,806 t), and squid (1,149 t). Landings of skipjack tuna (1,309 t) were also important in 1974, but that species was not caught locally and probably should be considered as imports. Appendix B has statistics on fish landed at Nouadhibou in 1974 by their eventual use (i.e., salting, conversion into fish meal, freezing, and canning). The same appendix also has average exvessel prices for the different species during 1974 in U.S. dollars per kg. Among the fish species, yellowfin tuna brought the highest prices (US$0.93 per kg); however, small amounts of spiny lobster were were priced at U.S.$4.87 per kg. The prices of octopus, cuttlefish, squid, and some other species fluctuated during the year (e.g., the price of octopus was 24 to 27 U.S. cents per kg in 1974).

1/ For additional information on mullet, see Jacques Brulhet, "Situation et Perspectives des Pêcheries du Mulet Jaune de Mauritanie," Pêche Maritime, vol. 53, No. 1,159, (October 20, 1974), 702-707.

Figure 8.--Nouadhibou fishing port.

Another indication of the species distribution off Mauritania can be obtained by analyzing the statistics of the Norwegian pelagic fishery off Mauritania and neighboring countries. Data from two Norwegian vessels, Astra and Norglobal, are available by species (table 4, app. C, D, and E). The two vessels operated from Villa Cisneros in the former Spanish Sahara south to Guinea Bissau.

Table 4.--Norwegian pelagic fishery off West Africa, 1971-72, by species

SPECIES	VESSEL					
	Astra		Norglobal			
	1971		1971		1972[1/]	
	1,000 t T.	Percent	1,000 t T.	Percent	1,000 t T.	Percent
Horse mackerel[2/]	40.1[3/]	37	42.8	46	12.2	19
Yellow mackerel			9.4	10	1.2	2
Sardinella	40.0	37	31.6	34	48.8	75
Chub mackerel	28.1	26	8.7	9	1.7	3
Other			0.3	0[4/]	0.9	
Total[5/]	108.2	100	92.8	100	64.9	100

1/ Data not available for Oct.-Dec., 1972.
2/ Trachurus trachurus and T. trecae.
3/ Astra's data did not separate yellow and horse mackerel.
4/ Less than 0.4 percent.
5/ Totals may not agree because of rounding.
Source: O.J. Ostvedt. "Report on the Norwegian Pelagic Fishing off West Africa 1970 and 1971". Paper presented to the CECAF Working Party on Resources Evaluation, Rome, April 14-20, 1972, in FAO. "Report on the Second Session of the Fishery Committee for the Eastern Central Atlantic (CECAF) Working Party on Resources Evaluation," FAO Fisheries Report No. 158, Rome, 1975, pp. 81-83.

Astra's catch consisted of four species in 1971, sardinella - 37 percent; horse and yellow mackerels - 37 percent; and chub mackerel - 26 percent. The greatest percentage of sardinella was caught in September (95 percent) when Astra was operating primarily north of Cap Blanc. Horse mackerel dominated the catches in January (70 percent) when Astra was operating off Nouakchott and during November and December (85 and 70 percent) when it was fishing off Cap Blanc. Chub mackerel catches were the largest from February to April (70, 50, and 40 percent) when the fleet operated in the Nouakchott - St. Louis area. In mid-March, Astra moved south to the Gambian coast.

Norglobal caught the same major species. In 1971, a total catch of about 93,000 t had 45 percent horse mackerel, 10 percent yellow mackerel, 34 percent sardinella, and 9 percent chub mackerel. In January - February, when the fishing was concentrated in the Nouakchott area and southwards to the St. Louis-Cape Verde area, horse mackerel was the most abundant species. In November, when fishing was carried out in the area from Cape Timiris to Villa Cisneros, horse mackerel also dominated the catches. Yellow mackerel was found in the catches during March - May; the highest percentage was in March (30 percent). In this 3-month period the fleet moved from the Nouakchott area to The Gambia. Chub mackerel was represented in the April and November catches (15 percent), and dominated the December catch (75 percent).

In 1972, the same four species dominated Norglobal's catch. Horse mackerel was the major species caught in January; sardinella catches were the largest from February to May. Except for December, during the rest of the year sardinella was the major species caught; however, the quantities were far below the levels in the first half of the year.

Figure 9.--Fish landed at the Nouadhibou fishing port.

2. Crustaceans

a.) Shrimp

The shrimp catch is composed primarily of four species common to West African coastal waters. On the continental shelf, Penaeus karathurus and P. duorarum are caught. On the slope of the continental shelf, beyond a depth of 150 m, catches of Parapenaeus longirostris and Pleisionika edwarsii were reported. The fishing grounds where these species are caught are indicated in figure 10.

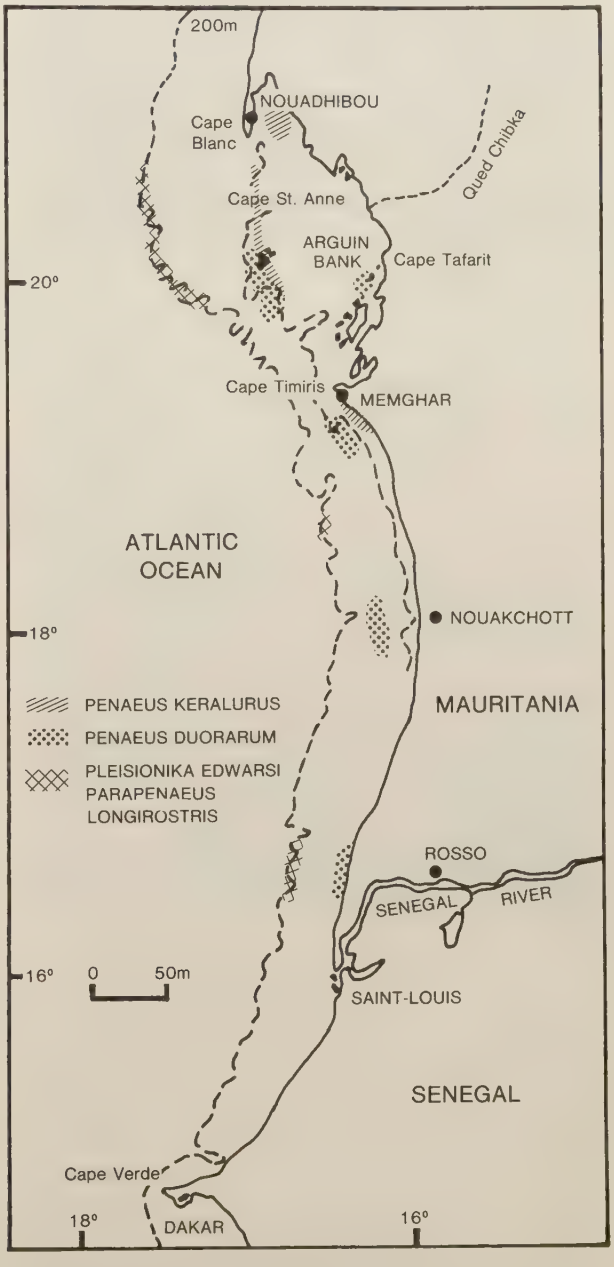


Figure 10.--Map of Mauritania showing shrimp grounds fished by Greek and Spanish trawlers, 1969-70, 1972

The Mauritania Government granted permission in 1969-70 for five Greek trawlers to fish for shrimp in Mauritania-claimed waters. The Greek trawlers had engines of 300 to 800 hp and a single trawl with 46 to 60 m rims and 60-70 mm mesh. The wings of the trawl had mesh of 40 to 50 mm in the back and 20 mm on the bottom. The Greeks never succeeded in catching more than 0.28 t of shrimp per fishing day (table 5). It is not known whether the Greek shrimp operation continued beyond 1970.

Lobster is caught with nets which are set at night near the coast at a depth of 8 to 10 meters and hauled in the next morning. French fishermen operate out of the port of La Guera under the terms of a bilateral agreement between France and Mauritania. In addition, two Mauritanian flag vessels operate out of Nouadhibou. Mauritanian regulations prohibit the sale of lobsters less than 18 cm or of egg-bearing females. Few small lobsters, however, are caught as the mesh size of the nets is 17 cm. The average lobster

Table 5.--Yields obtained by Greek trawlers off the coast of Mauritania, 1969-70

	FINFISH[1/]				SHRIMP[2/]			
	Vessels	Fishing Days	Total Catch	Catch Per Day	Vessels	Fishing Days	Total Catch	Catch Per Day
	number	number	t	t	number	number	t	t
1969								
August	2	49	79.0	1.6	4	67	11.50	0.17
September	3	86	124.8	1.4	5	137	27.90	0.20
October	3	76	116.3	1.4	5	130	36.01	0.28
November	2	56	82.4	1.4	4	95	20.16	0.21
December	3	81	130.8	1.6	5	122	19.51	0.16
1970								
January	2	60	124.6	2.1	3	83	5.00	0.06
February	1	18	30.6	1.7	1	18	1.00	0.06

1/ Data available for 3 vessels.
2/ Data available for 5 vessels.
Source: J. Maigret and J. Brulhet, "Information on Fishing off the Coast of Mauritania", Bulletin of the Fishing Laboratory of Nouadhibou, No. 2, December, 1973, p.121. Translated from French by Margaret Duggan Saidi for the National Science Foundation and the U.S. Department of Commerce.

Six Spanish trawlers were authorized to fish shrimp off Mauritania in 1972. The Spanish fleet was composed of four 600-hp and two 1,700-hp trawlers. The latter two operated off Mauritania only during March. They were equipped with two trawl nets having 35-m headlines. The Spanish obtained their best results in February when average catches of 0.80 t per sea day were reported (table 6).

Table 6.--Shrimp yields obtained by the Spanish trawlers off the coast of Mauritania, 1972

MONTH	VESSELS	SEA DAYS	CATCHES	CATCH/DAY
	--number--		--metric tons--	
1972				
February	2	50	40.00	0.80
March	4	124	73.00	0.58
October	4	92	30.00	0.33

Source: J. Maigret and J. Brulhet, "Information on fishing off the coast of Mauritania", Bulletin of the Fishing Laboratory of Nouadhibou, No. 2, December, 1973, p.122. Translated from French by Margaret Duggan Saidi for the National Science Foundation and the U.S. Department of Commerce.

b.) Lobster[1/]

Spiny lobster has been fished off the West African coast since the turn of the century. The fishery was originally directed at Panulirus regius, called green lobster locally. Catches of P. regius reached record levels in the 1940s, but catches have since declined and the fishermen have been taking larger amounts of Palinurus mauritanicus, which they call pink lobster. Off Mauritania, green lobster is found in the rocky zones of Levrier Bay, but is rare on the Arguin Bank. South of Cap Timiris, green lobster is not found in commercial quantities except in a few areas south of Nouakchott. Information on the geographic range of pink lobster is not available.

1/ Jaques Maigret, "Aspect des populations de Langouste verte Panulirus regius (Brito Capello, 1864) sur les côtes du Sahara (Cap Barbas-Cap Vert) en 1972/73," Bulletin du Laboratorie des Pêches de Nouadhibou no. 3, Decembre, 1974, p. 43-56.

caught is about 20 cm, although lobster as large as 40 cm are taken in the South where lobster is not as heavily fished. A total of 15 t of lobster was landed in Nouadhibou in 1974; however, an unknown quantity was transshipped directly to France.

V. ARTISANAL FISHERIES

A. Inland

Mauritania's southern border is the Senegal River, which together with the tributary Gorgol

River, is a source of freshwater fish for an estimated 15,000 Mauritania fishermen. The Senegal River has a wide variety of fish. About 90 species have been identified, many of which play an important part in the local diet and commerce, particularly in the interior where poor roads and the high cost of fuel make it difficult to distribute marine fish.

Water quality in the River varies dramatically from one season to the next. The water in the River is fresh for its entire course during the peak of the flood season. Salty or at least brackish water is found as far as 200 km from the coast when the river is at its minimum flow during the dry season. Those species that are tolerant of a wide range of salinity apparently move freely between the two salinity extremes. The less tolerant species occupy only a given stretch of the River when one or the other extreme exists. During the flood season true freshwater fish are able to migrate as far as the mouth of the River, and true saltwater or brackish water species can migrate upriver during the dry season. At one village, about 50 km from the coast, the fishermen catch mostly saltwater species, including saltwater shrimp, from April to June; whereas most of their catch from September to December is freshwater species, including the large freshwater shrimp (Macrobrachium). Mixed saltwater and freshwater species are taken during the rest of the year, depending on fishing grounds.

Figure 11.--Fishermen hauling a large beach seine along the Senegal River. (c) Philip C. Pierce and Elwood A. Seaman

Catches on the River have apparently been significantly reduced by the Sahelian drought which began in 1969. One report indicates that the 1974 catch was about one-third of the 1967 catch. During a 1975 trip, a U.S. Government official observed a group of fishermen engaged in a midafternoon seining operation near the Mauritanian town of Kaedi. Several drags with a 150-meter seine produced only enough fish to cover the bottom of their 8-meter canoe. The fishermen said that when fishing was good, a single haul could fill the entire canoe. The observed catch had primarily small Tilapia, Clarias (catfish), Alestes, Synodontis, and Hydrocyon.

Figure 12.--Dugout canoe containing the catch of a large beach seine. (c) Philip C. Pierce and Elwood A. Seaman

Fishing along the River is done with large beach seines by families since the seines are costly and several people are required to operate them. Also used are smaller seines, gill nets, cast nets, butterfly nets, traps, and hooks. According to the local fishermen,

Figure 13.--Butterfly net used by the Senegal River fishermen. (c) Philip C. Pierce and Elwood A. Seaman

catches are best during the rainy season because the fish cannot see the nets and traps in the murky flood waters. In addition the fish are attracted to the newly flooded areas by plentiful food.

Another commonly practiced fishing method is when two boats, one at each end of a long gill net, float down river during high water. This is known as "drift fishing" and is reportedly very effective. Weirs and traps are set at the mouth of the natural drainage ditches ("Marigots") which feed the floodplain lakes and marshes during the annual flood and recession

cycle. Most of this fishing effort reportedly takes place when the waters are receding. The fish are trapped when they try to return to the river as the water level starts to drop in the lakes and marshes. If the fish were caught during the rainy season before they spawn, any concerted effort by enough fishermen could drastically reduce breeding stocks.

Figure 14.--Fishermen dragging butterfly net along the River. (c) Philip C. Pierce and Elwood A. Seaman

Figure 15.--Poor results of one haul of the butterfly net. (c) Philip C. Pierce and Elwood A. Seaman

Fishing is also practiced in the permanent and seasonal shallow lakes existing in the floodplain. These fishing areas are reported to be important to the villages not located along the River. Fishing is done throughout the year, or until the lakes dry up, but apparently the greatest effort is made when the water is very low and large quantities of fish are easy to catch.

The Senegal River Basin appears to be extensively and heavily fished, particularly during the dry season when fish are concentrated in the few remaining deep holes. The Senegalese Government is apparently aware of possible overfishing and has set aside five deep areas of the River where fishing is prohibited or where restrictions on fishing techniques are enforced. No information is available on similar measures taken by the Mauritanian Government.

The best available estimates place the annual Mauritania freshwater catch at 15,000 tons. Of this total, about 8,000 t is eaten fresh in the fishing villages; 4,000 t is sold fresh within 50-km of the River; and 3,000 t is dried[1/] before being sold to traders who sell the fish in the interior of the country. Consumption of fish in Senegal River Basin averages as much as 75 kg per year.

Figure 16.--Fish displayed for sale in a market in the interior of the country. (c) Philip C. Pierce and Elwood A. Seaman

River fishing has increased significantly during the past years because of the shortage of food, the influx of more people to the River because of the drought, and because the cost of other foods has risen greatly. The price of fish has reportedly increased fourfold since 1969, when the drought started. Fish remains, however, the cheapest source of protein and an important part of the local diet.

The Toucouleur is one of the major tribal groups that fish in fresh water. About 10,000 tribesmen are full-time fishermen; the remaining 5,000 are farmers and fish only to add to their income or diet. The catch is turned over to tribal women who divide it, process the fish, and sell the product.

B. Marine

1. Imraguen Fishermen

The Imraguen tribe is the only important native tribe of marine artisanal fishermen in Mauritania. The Imraguens, who number about 430 men, live in 10 fishing villages around Cap Timiris (fig. 1). These fishermen subsist almost

1/ Fish is dried by spreading the catch on the grounds and exposing it to the sun for 3 to 4 days.

Figure 17.--Fish drying in the sun. (c) Philip C. Pierce and Elwood A. Seaman.

entirely on their catch and on other traditional foodstuffs (tea, sugar, spices) which they buy or exchange for fish with caravans or peddlers. The Imraguen fishermen catch mostly mullet, corvina, sardine, and lobster.

The Imraguens fish for flathead grey mullet (Mugil cephalus) from March through April and from October through December of each year. Waiting for the mullet, the Imraguen stand next to the beach until a passing school of fish is sighted by one of the tribe who acts as a lookout. At a signal the men wade into the surf and form a human chain around the fish using either small, individual nets or larger beach seines. At times, feeding porpoises drive the mullet schools close to shore where they can be caught by the Imraguen fishermen. The mullet are salted and dried, or they are used in making "Poutargue" (dried and salted mullet roe which is wrapped in a thin layer of beeswax and paraffin). The Imraguens have been making poutargue since 1934. It takes about 35 kg of ripe female mullet to yield 1 kg of poutargue, and the Imraguens produce between 5 and 20 t each year. Their output is purchased by the Société Industrielle de Grand Pêche (SIGP) for export. In 1974, a total of 5.8 t of poutargue was exported to France (5.3 t), Italy (0.4 t), and Switzerland (0.1 t) at a total cost of $106,795 or about $18.41 per kg. The exvessel price of poutargue to fishermen is only $4.87 per kg or $28,246 for 5,800 kg.

The Imraguen also fish for corvina (Argyrosoma hololpidotum) from April through July, using two nets joined to two boats to surround the fish. Most of the catch is gutted and then dried in the hot desert sun. Much of this dried fish is then trucked to Nouakchott where some of it is exported to Dakar. The salt-dried corvina is taken to Nouadhibou for sale; in 1974, the Imraguens delivered 1,336 t of fish for salting and drying in Nouadhibou.

The Imraguen catch sardines with barrier nets. Lobsters are harvested with pots and nets. For other species of fish they use fixed gill nets, cast nets, and nylon hand lines. The Imraguens owned 85 fishing boats in 1975, according to the Chef de la Circonscription Maritime de Nouadhibou. The fleet comprised sailboats, canoes equipped with outboard motors, and a few motorboats with decks.

The Government of Mauritania has decided to embark on a program to assist the Imraguen and other artisanal fishermen, and plans to study the fishermen's methods to determine which techniques are the most productive. The Government will then attmept to introduce new fishing methods and gear to increase catches, organize two or three centers where outboard motors will be repaired by trained technicians, and establish

Figure 18.--Marine fish for sale in a Mauritanian market. (c) Philip C. Pierce and Elwood A. Seaman.

a credit bureau where fishermen will be able to obtain funds to buy outboard motors and fishing gear. Finally, the Government hopes to purchase a used vessel to carry fresh water to isolated coastal fishing villages and bring back fish.

2. Ghnagla Fishermen

About one hundred Nomadic Ghnagla[1/] tribesmen migrate from Villa Cisneros to the mouth of the Oued Dra, where they harvest ambergris from sperm whales. The ambergris is then sold to the Tekra people in southern Morccco in exchange for food and manufactured products. The Ghnagla make their harpoons and other fishing implements by hand. Their nets are woven from fibers of Aristida pungers, balls of baked clay are used for ballast, and their hooks are forged. They possess some motorized boats, but never dare to go far from the coast. Besides whaling they look for barnacles, which they call "negro fingers" on reefs or floating timbers. They also fish for crabs, spider crabs, mussels, oysters, cuttlefish, periwinkles, octopus, and sea urchins, most of which they consume themselves.

1/ The name of the tribe means "harpooners" in Berber.

3. Senegalese Fishermen

About 250 Senegalese fishermen who live in Nouakchott and in Nouadhibou also fish in Mauritania as they do in other West African countries. They have migrated to Mauritania and are now permanent or semipermanent resident aliens. The operate more than 60 wooden canoes, 7 to 9 m long and equipped with outboard motors. In 1974, these fishermen, using mostly hand lines, landed 3,549 t of fish in Nouadhibou (table 7). The bulk of the catch (2,465 t) was sold to the Spanish firm Industries Mauritaniennes de Pêche (IMAPEC) with 1,034 t being sold locally.

Table 7.--Utilization of fish landed by Senegalese fishermen, 1974

Commodity	Sold To		Total
	Commercial Companies 1/	Local Markets	
	- - - - metric tons - - - -		
Frozen	1,637	-	1,637
Fresh	-	1,034	1,034
Canned	2	-	2
Salted and Dried	411	-	411
Fish meal	465	-	465
Total	2,515	1,034	3,549

1/ Almost all of the commercial sales or 2,465 t was sold to IMAPEC. The rest was sold to SIGP (23 t) and EGA (27 t).

Source: Laboratoire des Pêches. Direction des Pêches. Ministère du Developpement Industriel. Bulletin du Laboratoire des Pêches de Nouadhibou, No. 3, December, 1974, p.166-167.

The "Plage des Pecheurs" (Fishermen's Beach), about 10 km from the capital of Nouakchott, was visited at about 5:30 p.m. as some of the Senegalese fishermen were returning from their day at sea. As the following sequence of photographs shows, the fishermen came in quickly through moderately heavy surf (fig. 19): the canoes were immediately met by local helpers (fig. 20), who promptly helped unload the craft before it could be swamped (fig. 21). The empty canoe was finally wrestled ashore (fig. 22).

Figure 19.--Fishermen returning from a day of fishing.

Figure 20.--The canoe is met by local residents.

Figure 21.--The canoe is unloaded.

Figure 22.--The canoe is dragged ashore.

The weather was so incredibly hot and dry that the freshly caught fish looked parched and dry as soon as they were landed. (To prevent this drying the fishermen sometimes bury their catch in wet sand). Offshore, the setting sun was barely visible because of the dust-laden air. Once the boats were safely beached, the canoe's leader distributed the catch to each member of his crew--usually one or two large fish. Next, each volunteer who had helped was

given a fish or two. The remaining fish, in burlap bags or in plastic containers, were shipped to Nouakchott for sale.

4. Beninian Fishermen

A few dozen fishermen from Benin (formerly Dahomey) own a dozen or so canoes in Nouadhibou. Their fishing methods and boats are similar to those of the Senegalese.

5. Other

Many Mauritanians who live along the coast can be considered as part-time subsistence fishermen; who, for example, work in the mining industry, but who fish in the evenings or on weekends to help feed their families.

VI. COMMERCIAL FISHERIES

A. General

Mauritania's commercial fishing industry is now one of the few modern industries in that largely nomadic country. Until foreign investment began in 1965, Mauritania fisheries consisted of a few hundred tribesmen and two small fish-drying plants. The Mauritania Government, with the backing and efforts of a few persons, mainly French embarked on an extensive fisheries modernization program. The country, however, lacked the necessary economic infrastructure, experience, and trained personnel to support this project. Expensive and sophisticated machinery was purchased that far exceeded the capacity of the existing port facilities. Delivery priorities were not established, and the costly fishing fleet arrived in Mauritania several years before the fishing port at Nouadhibou was completed;this fleet went bankrupt just as the port was finished. The bankruptcy of the fishing fleet left many companies without supplies of raw fish and forced additional firms to close.

This series of disasters left the Mauritania Government with few options. To salvage some benefits from this costly program, the Government decided to use the experience of nations that were already fishing along the Mauritania coastline. The Government therefore began selling fishing rights to foreign companies while, at the same time, persuading and encouraging these companies to enter into joint ventures with Mauritania-owned processing plants. By 1970, following the conclusion of a series of international agreements, supplies of raw material once more began flowing into the fishing port complex at Nouadhibou.

B. Company Developments in 1974-75

In 1974, Nouadhibou had seven active on-shore processing companies along with two Spanish firms that landed supplies at Nouadhibou for shipment to their plants in the nearby town of La Guera in the former Spanish Sahara. These nine companies received 70,023 t of raw, partially or wholly finished products in 1974. Over 50 percent of the total, or 39,384 t of fish, was reduced fish meal and oil (table 8 and fig. 11).

Table 8.--Use of landings at the port of Nouadhibou, 1974

Comodity	Quantity	
	T	Percent
Fresh	1,034	15
Frozen, gutted	21,113	30
Salted-dried	5,607	8
Canned (tuna)1/	2,863	4
Fish meal and oil	39,384	56
Other	22	0
Total2/	70,023	100

1/ Imported from Spanish cargo ship.
2/ Totals may not agree because of rounding.
Source: Laboratoire des Pêches, Direction des Pêches. Ministère des Pêches, Bulletin des Laboratoire des Pêches de Nouadhibou, No. 3, December 1974, p.166.

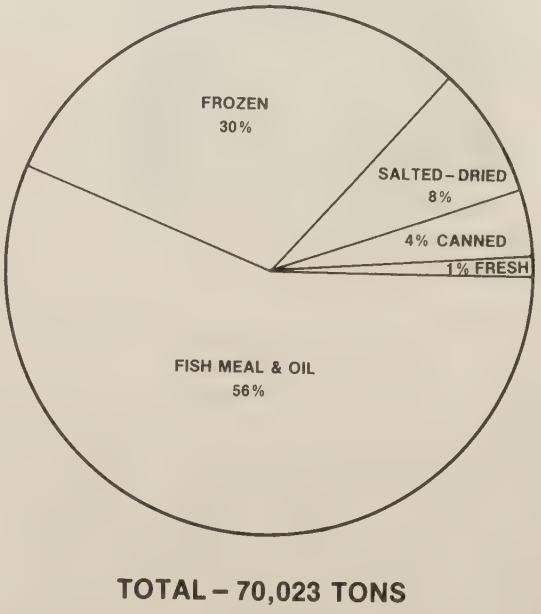


Figure 23.--Use of landings at the port of Nouadhibou, 1974.

Total landings at Nouadhibou included 15 t of spiny lobsters, and about 6 t of finished poutargue. Appendix F provides landings statistics by individual firm and by product category for 1974.

Vessels from the Canary Islands in 1974 landed 14,604 t of fish at Nouadhibou, making the Canary fleet one of Mauritania's most important sources of fish (app. A). In 1974, however, many of these Canary trawlers and seiners--already aged and facing difficulties in hiring crewmen--dis-

continued fishing, especially when several Mauritania fish meal plants closed because of decreased world prices for fish meal. The landings by the Japanese fishermen were the second largest in 1974 with 12,062 tons. Most of the Japanese landings were frozen octopus, cuttlefish, and squid. A Dutch firm (INTERPECHE) and two Norwegian firms (ASTRA and NORGLOBAL) landed 10,374 t, 8,508 t, and 2,490 t, respectively, with the bulk of these landings (18,215 t) being

Figure 24.--Squid being processed in the IMAPEC plant.

reduced to fish meal and oil by the Société Mauritanienne des Industries de la Pêche (SOMIP).

Two firms (INSAMARTA and OSMAER) from La Guera landed 9,026 t of fish in Nouadhibou. The INSAMARTA's vessels landed 7,770 t, and the rest was purchased from other sources. All their landings, except 859 t which was sold to a Spanish firm in Nouadhibou, were trucked across the former border to La Guera for conversion into fish meal. As a result of fighting in La Guera in December 1975, these two plants are not currently operating.

The Soviet Union's trawler fleet of 25 vessels in Mauritania waters landed 6,554 t of fish at Nouadhibou in 1974. The fleet rotated its vessels; an average of 14 vessels generally fished at any given time. Each vessel averaged 40.1 t of fish landings per month, or 7.1 t per port call. According to Mauritania statistics, octopus accounted for 59.1 percent of total Soviet landings, followed by squid (10.2 percent) and cuttlefish (7.1 percent). The Soviet fleet in Mauritania is represented by Boris Sultanov Mamedovich of the Soviet Ministry of Fisheries.

Landings by the Senegalese and Beninian fishermen were 3,549 t, of which 1,034 t was sold locally as fresh fish. Deliveries by Spanish vessels included 1,931 t of tuna that was actually imported to keep a Spanish-owned canning plant operational, but which is listed under the rubric "landings" in local statistics. This tuna presumably was not caught in Mauritania waters. Appendix G provides a breakdown of 1974 landings by foreign and domestic fleets for different firms.

Figure 25.--Large amounts of fish being dried at the IMAPEC plant in Nouadhibou.

The year 1974 was not entirely satisfactory for the Mauritania fishing industry. Several fish meal plants suspended operations in 1974 because of lower world prices for fish meal. Many of these plants remained closed in 1975, and they probably will not resume production until the world price for fish meal reaches $300 a metric ton. Additionally, a prominent figure in Mauritania fisheries ran afoul of the law in 1974. He fled the country causing the closure of his plants until the legal issues involved in his case can be resolved. By October 1975, the situation in Nouadhibou, although far from desperate, was not very encouraging. All fish-processing plants in Nouadhibou were operating well below their capacity, and several major plants remained closed.

The Mauritania commercial fishing industry, centered in Nouadhibou, appears to be well equipped to produce significant quantities of high-quality fishery products. But the industry

Figure 26.--Little tuna being processed in processing plant in Nouadhibou.

is not without various operating problems. In 1974-75, the decrease in world fish meal prices caused a temporary shutdown of several fish meal plants. During 1975, there appeared to be a general lull in commercial activity; many firms waited for world fish prices to stablize or increase. There were several obvious signs that Mauritania was sucessfully attracting foreign technicians and managers. The Japanese have been especially active.

The authors would not expect 1975 landings or exports to increase significantly over those of 1974. In fact, lower catches should be anticipated. This decrease, if it occurs, will be temporary and will reflect worldwide financial problems that are shared by Mauritania. The decrease does not, however, mean that Mauritania is fully using existing resources or processing plants. Future Mauritanian fishery catches could be significantly expanded without too much strain on existing facilities or marine resources. A detailed description of the Mauritania fishery companies can be purchased by ordering report number PB-261862 from the National Technical Information Service.1/ Data on Mauritanian fishery companies are summarized in Appendix H.

1/ A paper copy of the report costs $3.50 and a microfiche copy costs $3.00. Orders should be addressed to:

U.S. Department of Commerce
National Technical Information Service
Springfield, Va. 22161

VII. SPORT FISHING

Recreational fishing is popular amoung the foreign community that resides in Nouakchott and Nouadhibou. Such fishing, however, is a family affair and takes place along isolated stretches of beach during the weekends. The country does not appear to have any organized fishing parties or groups. The Mauritania Government's tourist literature refers to spectacular fishing grounds, but tourist fishing is somewhat limited at this point. There is a small building that serves as Nouadhibou's only "sport fishing club." It is possible that recreational fishing, tied in with tourism, could be developed in the future. Until the tourist economy can be further developed, however, it is doubtful that any major expansion of this recreational sport can be expected.

VIII. INTERNATIONAL FISHERY AGREEMENTS AND FOREIGN FISHING

Mauritania has concluded fishery agreements with about 20 foreign countries during the past 15 years. Most are on a government-to-government level, but some were negotiated on a government-to-industry level. The joint venture arrangement appears to be the most popular form of fisheries development -- at least since 1969 -- and the Mauritanian Government would like to see more joint venture fishery firms established. The Government has also signed many fishery agreements which permit foreign vessels to fish in Mauritania-claimed waters without requiring participation in any onshore projects. Mauritania has concluded such agreements when political or economic benefits in other areas outweigh the needs of the local fishing industry. In addition to these "working" agreements, the Government of Mauritania has also signed several agreements, more symbolic than practical, with other developing countries in Africa. Finally, the Mauritania Government has permitted and even encouraged industry-to-industry joint fishing ventures (the COMIP company, which has Italian participation, is one such arrangement).

In late 1975, Mauritania began to adopt a much tougher attitude toward the negotiation and renegotiation of fisheries agreements with other countries. The details of this policy change are not yet known, but extensive discussions have been held with several countries in early 1975. In general, this policy requires that foreign countries or companies pay more per GRT of fish taken from Mauritania waters. It also involves an effort to increase deliveries of fish to local industry in Nouadhibou. An historical summary of Mauritania's fishery agreements and a description of foreign fishing activities off

Mauritania has been published by the National Marine Fisheries Service.[1/]

IX. TRANSSHIPPING

Several nations have agreements with the Government of Mauritania legally permitting their vessels to transship either a portion or the entire catch on the high seas. The Egyptian stern trawlers Rassel Bar and Rass Benas, for example, do not have to land any of their catch at Nouadhibou. In this case, political considerations simply outweigh economic considerations.

In most cases, however, the Government of Mauritania and the interested party estimate the annual catch per vessel. Then, a certain percentage of that total estimated catch must be landed in Mauritania to be processed in local plants; the rest can be transshipped on the high seas. Generally, a small fee is charged for all transshipments based on the estimated catch. The major difficulty with this system, recognized by Mauritania, is that a considerable amount of fish can be caught beyond the agreed-upon estimated catch. Since the Mauritanians cannot adequately inspect and enforce high-seas fishing, there is little they can do to prevent the shipment of unreported catches.

As reported earlier, two firms, INSAMARTA and OSMAR, both in the city of La Guera, had permission to land and/or buy fish at the port in Nouadhibou for shipment across the former border. Following the Mauritania takeover of La Guera in December, 1975, both firms were placed under Mauritania control. They are believed not to be operating at the present time.

In summary, the problem of transhipping remains an irritant to the Mauritanians for several reasons: (1) Fish caught in their waters is being shipped to other countries without their having any idea as to the quantities or species caught, (2) their land-based factories remain underutilized while fish are being caught just a few miles away, and (3) no economic benefit accrues to Mauritania. The Mauritanians, however, have accepted this fact and are prepared to live with this situation until a better solution can be found.

X. PORT FACILITIES

A. Nouadhibou

As of October 1975, Nouadhibou's total landing capacity for fishery products was 262,500 t per year. This amount was considered to be slightly below the maximum capacity of the processing plants, which the Mauritanians estimated as 303,000 t per year in 1974. It is also considered to be far below the potential catch capacity of the foreign fleets fishing offshore. Nouadhibou has four potential landing and unloading facilities: (1) the fishing port (25,000-t capacity), (2) the commercial port (8,000-t capcity), (3) the fish meal pumping station (212,500-t capacity), and (4) the private piers (30,000-t capacity). While Nouadhibou's port facilities could not handle the quantity of fish that the city's fishery companies are capable of processing, the 70,023 t of fish landed in 1974 were adequately handled.

1. Fishing port

The fishing port at Nouadhibou is at Pointe Chacal, south of the city of Nouadhibou. The port, which faces Cansado Bay, runs north and south. Construction began in December 1965; the port was completed in September 1968. The fish quay is 285 m long and can accomodate vessels with a 4-m draught. Loading and unloading of fish is done by cranes, conveyor belts or pumps--the same is true for ice or fish meal.

The fishing port now can only handle 25,000 t of fish per year -- one of the reasons why it was decided to extend the pier by some 300 m, thus doubling its present capacity. According to the Port Director, work will begin in May or June 1976 and is expected to take 21 months to complete. A French firm, Grandes Travaux du Ouest, will do the work.

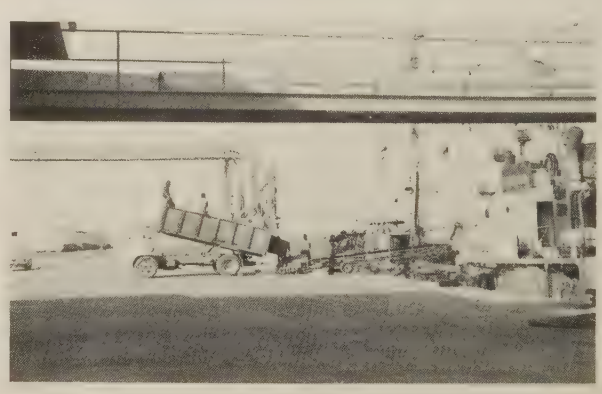


Figure 27.--Ice from an IMAPEC truck being delivered to a Soviet trawler. Overhead is the crushed ice delivery system run by SOFRIMA.

Problems, however, can be anticipated. At the present time there is no offshore breakwater. When seas are rough, the waves slam against the pier, driving vessels against the quay; at times vessels must anchor offshore until the seas calm. The Director of the Nouadhibou Port indicated that a breakwater was not planned for the foreseeable future. Additionally, there is only one ice delivery system (inoperative in October 1975), only one fish-reduction pump,

1/ Foreign Fisheries Leaflet No. 76/4 can be obtained free of charge by writing:
Services Branch, D825
ESIC, EDS, NOAA, Commerce
WSC-4
6009 Executive Blvd.
Rockville, Maryland 20852.

and only one fuel oil delivery point on the pier. The Director of the Port indicated that no new facilities would be added to the new enlarged port.

2. Pumping stations

Nouadhibou's two fish meal plants (IMAPEC and SOMIP) both operate a fish-pumping system that has a theoretical capacity of 212,500 t per year. The fish meal pumping system can pump 2 to 3 tons of raw fish per minute into an overhead pipe which leads into the SOMIP fish meal plant, and through an underground passage into the IMAPEC fish meal complex across the road.

commercial port does not have any special facilities to unload fish. In the commercial port, priority is given to cargo vessels; fishing captains must sometimes stop unloading and give way to freighters calling at the port. Nevertheless some fish is unloaded, especially along the three finger piers inside the protected southern part of the wharf. The commercial port generally handles no more than 6,000 to 7,000 t of fish per year. Under the port improvement plan, an additional 48 m of pier will be built running north from the present elbow of the L-shaped pier. This might serve as a partial breakwater for the southern end of the fishing pier.

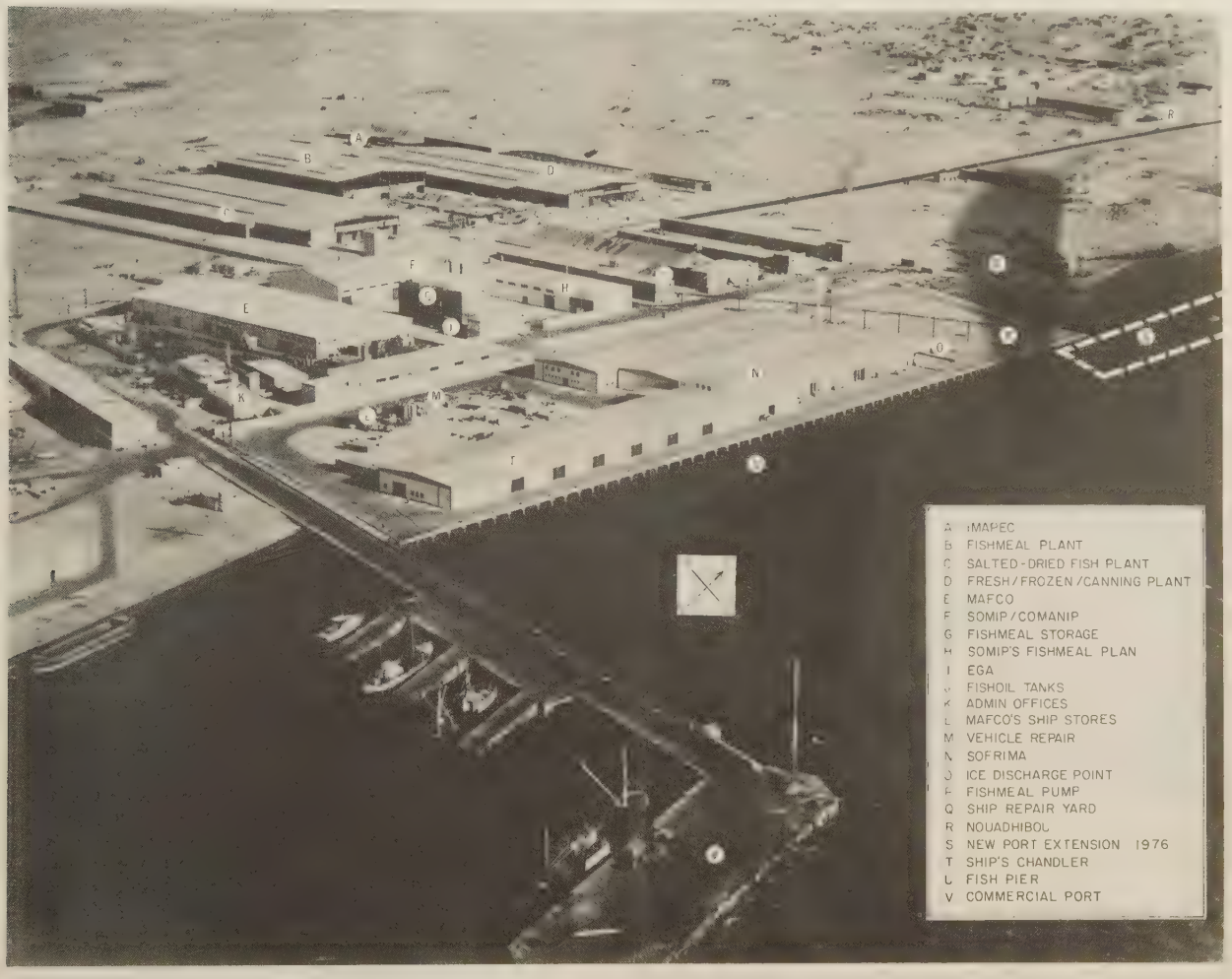


Figure 28.--The port complex at Nouadhibou. This photograph was taken in late 1969 or early 1970 since the IMAPEC plant (top of the photograph) is still under construction. The new fishing pier planned for 1976 is expected to extend 300 m northward.

3. Commercial port

The commercial port in Nouadhibou is better equipped to handle larger vessels more efficiently. The port includes a cement pier 65 m long and 22 m wide. The vessels are unloaded by ship's cranes and four other cranes. The

4. Private piers

As of October 1975, only one private fishing pier operated in Nouadhibou, the SIGP pier. A few years ago, before the collapse of the EGA fishing, drying, and salting operation, there were two additional piers. When

Figure 29.--The pump used to unload raw fish for reduction. The pipe leads directly to the SOMIP and IMAPEC fish meal plants. The vessel in the background is based in the Canary Islands.

private piers were in full operation, the vessels from the Canary Islands would tie up alongside to unload their catches into small railway flatcars that would be pushed by hand in the plant.

Figure 30.--Private pier where fish is landed and taken to the main EGA salting and drying plant. A second EGA fish pier is located in the downtown region of Nouadhibou, next to the fishermen's village.

The private piers could handle 30,000 t of fish per year when they were fully operational.

5. Repair yards

Nouadhibou has only one marine railway capable of hauling in small vessels for limited repairs. Marine hardware and spare parts are generally not available for larger vessels. The Government does not permit duty-free importation of these items without special legislation. In addition to the existing repair yard, the MAFCO freezing firm maintains a small workshop that is used to make minor repairs on some of the Japanese trawlers which call at Nouadhibou. Most of the Japanese fleet, however, goes to either Dakar or Las Palmas for major repairs and supplies.

A new company, Compagnie Mauritanienne des Armements (COMAR), has recently been established to develop the ship repair complex, which is still in a planning stage. The Mauritanians are discussing possible financing with France, Canada, Spain, and with representatives from the Arab Fund. Once work on the new port extension is complete, a new shipyard will be built. A seamen's center is also being considered to attract more seamen to Nouadhibou. The Director of COMAR is Mohamed Salem ould Ahmednah, and his address is: B.P. 18, Boulevard Median, Nouadhibou, Mauritania.

B. Nouakchott

The city of Nouakchott, the capital of Mauritania, is about 10 km from the ocean and is connected to the port by a single-lane paved road. A small cluster of houses are around the port, which consists of a 246.5-m pier. The pier is concrete and is 5 m wide; it is divided into two sides to control traffic. The Nouakchott port has four heavy, stationary cranes and an annual capacity of 100,000 t of cargo.

The port at Nouakchott is handling minor shipments of fish for COMIP and also services the COMIP fleet of Italian vessels. The Deputy Chief of Mission (DCM) at the U.S. Embassy in Nouakchott and the RFA were invited aboard one of the Italian vessels, which was anchored well offshore. Heavy surf prevented a small boat from coming alongside the pier, and the visit was cancelled. There is no breakwater offshore, and the pier juts straight out into the sea; unloading vessels were subject to large swells, which made unloading operations somewhat challenging.

Technicians from the People's Republic of China are already engaged in survey work for the construction of a deepwater port at Nouakchott. The project is proceeding slowly, however, and it will be a number of years before the port will be operational.

XI. FISHERIES ADMINISTRATION

A. Background

Fisheries came under national regulation on January 20, 1962, in a law that dealt with shipping and fisheries. In January 1969, a few weeks before the collapse of the SOMAP fishing fleet, a Fisheries Advisory Council, made up of government and private business leaders, was established to advise the Government of Mauritania on all fishery matters. On April 3, 1969, the Department of Fisheries was upgraded into a Ministry of Fisheries and Merchant Marine (Ministere des Pêches et Marine Marchande) headed by Mohamed Salem Ould M'Khaittirat. The Ministry had four departments; two were in Nouakchott and two in Nouadhibou. The Department of the Merchant Marine (which regulated fishing vessels) and the Department of Fisheries were established in the capital. The Department of Scientific Research and the Shipping

Registration Department were located in Nouadhibou.

B. Present administration organization

In 1972, the Ministry of Fisheries and the Merchant Marine was disbanded and its functions were taken over by the Ministry of Planning and Industrial Development, headed by Sidi Ould Cheikh Abdullahi. A Directorate of Oceanography, Fisheries and Merchant Marine was established in Nouakchott while fisheries control was placed in the hands of the Chief of the Maritime District of Nouadhibou.

1. Direction de l'Océanographie, des Pêches, et de la Marine Marchande

Abdullahi Ould Ismail, Director
B.P. IS 137
Nouakchott, Mauritania

The Director of Fisheries in Nouakchott was El Waly N'Daw from September 1972 through October 1975. In August 1975, the Fisheries Department and the Merchant Marine were again reorganized, and came under the jurisdiction of the Ministry of Industrialization and Mines. The new Director of Fisheries, Abudullahi Ould Ismael, took over his duties in November 1975.

2. Chef de la Circonscription Maritime de Nouadhibou

Brahim Ould Dhorat, Chief
B.P. 23
Nouadhibou, Mauritania

Brahim Ould Dherat, Chief of the Maritime District of Nouadhibou, is the primary Mauritania fisheries authority in Nouadhibou. His office is constantly crowded with people seeking advice, airing grievances, or seeking permission for various projects. His knowledge of local fisheries is so great and his influence so widespread that he is unofficially known in Nouadhibou as the "Minister of Fish". He is an extremely courteous man and respected gentleman. People flock to shake his hand throughout the city. He can also be tough; he has personally ordered the seizure of all foreign vessels caught fishing illegally in Mauritania waters. Brahim is also quite adept at dealing with foreigners; he is Mauritania's permanent representative to FAO's Central Eastern Atlantic Fisheries Commission (CECAF) and he has negotiated all fisheries agreements made by his country. He deals, on a daily basis, with Japanese, Spanish, Soviet, French, and other foreign fishermen, industry representatives, and government delegations. Brahim is well travelled, having journeyed throughout Eastern and Western Europe, Africa, Asia, and parts of Latin America. His office overlooks the fishing port. He expects to move into new offices once the construction of the new fishing pier extension begins in the summer of 1976. At the present time he has some five or six persons working for him.

Brahim, the Deputy Governor for Economic Affairs, Athie Mohamed, and the Governor of the region, Hamada ould Zein, all went to great lengths to assure the RFA and the Deputy Chief of Mission (DCM) from the U.S. Embassy in Nouakchott that qualified United States fishery firms, interested in investing in Mauritania fisheries, would be cordially welcomed. The only request they made was that the Embassy of the United States should be contacted first so that official introduction could be made at the proper level.

XII. FISHERIES RESEARCH

Laboratoire des Pêches

Sy Moussa Arouna, Assistant Director
B.P. 22
Nouadhibou, Mauritania

During the French administration of Mauritania, the governing authorities constructed a fisheries and oceanographic laboratory in Nouadhibou. The construction began in 1950 and was completed in 1952. From 1952 until 1966 the laboratory made hydrographic studies in the Bay of Levrier. In 1962, the facility obtained a 30-GRT stern trawler, the R/V Almoravide, from the French Government and used it as a research vessel. The 17.50-m-long craft has a 160 CV hp engine and a seven-man crew.

Figure 31.--The R/V Almoravide.

With the R/V Almoravide, the Laboratoire des Pêches has conducted fisheries surveys as far south as Cap Timiris and as far north as the coast of the former Spanish Sahara.

The oceanography section of the laboratory has a small room where hydrologic, salinity, temperature, oxygen, and planktonology studies are carried out and evaluated. There are also rooms where fish specimens are kept and a library. In 1972, a new addition to the building was constructed and additional space has been provided for laboratories. The new oceanographic laboratory is equipped with photospectrometers,

a profile projector, microscopes, etc.

In addition, the Laboratoire des Pêches is performing several small experiments in raising lobsters and mollusks for scientific research inside the facility. The results of their work are published as the Bulletin du Laboratoire des Pêches de Nouadhibou.

Food and Agriculture Organization of the United Nations (FAO):

Zvonimir Grče
Expert en Technologie du Poisson
Laboratoire des Pêches
B.P. 22
Nouadhibou, Mauritania

Grče, aged 54, is a Yugoslav national who has worked with the FAO for 8 years, 6 years in Senegal, and 2 years in Mauritania. He and his wife are the only Yugoslavs in the country, and he is the only FAO fishery specialist. Grče is classified by FAO as a Fish Processing Technogist, and his objective is to help improve the quality control of all Mauritania fishery products in addition to seeking new methods of processing marine fish. Grče has several new,

Figure 32.--Fish being dried by laying them on the ground, a common method of preserving fish in Mauritania.

well-equipped laboratories for his quality inspection work. He has received $178,800 from FAO to establish and equip his facility and to operate the project. A total of $36,000 has been allotted for laboratory equipment and two automobiles. The rest is spent on salaries and housing.

FAO has granted two fishery scholarships to Mauritania nationals. One student has already left for Nantes, France, to study chemistry. Another student is in the process of being selected. A student from Burundi on an FAO scholarship studies under Grče. The RFA gained a considerable appreciation for Mauritania fisheries because of the long discussions held with Grče. His assistance was greatly appreciated. An extremely hospitable man, Grče has come to know Mauritania fisheries with a rare insight.

XIII. FISHERIES EDUCATION

Education in fisheries is an important goal of Mauritania's fisheries policy; however, a program of requiring foreign companies to employ Mauritanians on vessels licensed to fish in Mauritania waters has not proven successful. Practical on the job training of Mauritanians by foreign fishermen was first conceived by Brahim Ould Dherat, Chef de la Circonscription Maritime de Nouadhibou. In theory this should have given untrained nomadic desert people their first experience with modern commercial fishing. Because they were entering a new field---and thus did not have any old habits to break--they should have been ideal candidates for the task. Reality, according to Brahim, proved different. Most foreign fishing captains did not attempt to train their Mauritania crewmen. They were used on minor cleaning details and were encouraged to keep out of the way, even to the point where they were paid for a voyage, but were told to stay ashore. Unfortunately, too many seamen took their pay, stayed home, and sought other jobs. Brahim, a realistic man, understands this situation, but hopes to change this state of affairs in the near future.

One way he expects to solve this problem is through academic training for 6 months followed by 6 months at sea. In 1974, the Japanese, in their annual fisheries negotiations with Mauritania, agreed to build, equip, and staff a fisheries training school. The school was completed on October 8, 1975, and is now fully equipped. However, Brahim noted, the Japanese have not been able to find six French-speaking Japanese who could teach. As a result, the school has remained closed. When opened, 24 students will be enrolled each semester.

XIV. LABOR

In 1970, the commercial fisheries of Mauritania employed 1,125 Mauritanian workers and 80 expatriate technicians; by 1974, this figure included 1,555 Mauritanians and 108 foreign technicians for a total of 1,663 individuals. The various Mauritanians who worked ashore and on foreign vessels had average salaries of about $900 per year--about five times more than the average Mauritanian. This figure helped support an estimated 6,000 people, including wives and children, or about one-third the population of the city of Nouadhibou. Commercial fisheries employees represent about 10 percent of the total modern labor force of the country.

XV. FISHERIES EXPORTS, 1974

A. Commodities

In 1974, the commercial fishery companies in Nouadhibou exported 28,000 t of fishery products

worth nearly $17 million. Fisheries exports were 9 percent of Mauritania's total exports of $181 million in 1974. The most important commodity was 15,600 t of frozen fish valued at $8.5 million. Other important export commodities were canned tuna, fish meal, and dried-salted fish (table 9).

Table 9.--Commercial fishery exports from the port of Nouadhibou, 1974

Commodity	Quantity		Value	
	1,000T	Percent	US$1,000	Percent
Fish				
Frozen	15.62	56	8.52	51
Canned (tuna)	2.10	8	3.44	20
Dried-salted	1.71	6	1.58	10
Fresh	0.03	0	0.04	0
Total fish[1/]	19.47	70	13.58	81
Spiny lobster	0.02	0	0.11	1
Mullet roe	0.01	0	0.05	0
Fish meal	7.83	28	2.63	16
Fish oil	0.69	2	0.32	2
Total[1/]	28.02	100	16.68	100

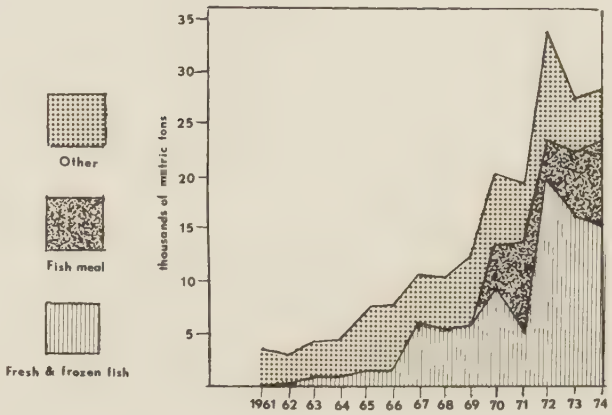
1/Totals may not agree because of rounding.
Source: Laboratoire des Pêches. Direction des Pêches. Ministère du Developpement Industriel, Bulletin du Laboratoire des Pêches No. 3, December, 1974, p. 171.

Mauritania exports increased sharply, both in quantity and in variety, in 1970, when the IMAPEC operations began (app. I and fig. 57). The record year for Mauritania exports of salt-dried fish (6,645t) was 1970. Exports of this commodity declined when SIGP began to face IMAPEC's competition. IMAPEC was able to offer higher prices for raw material for its freezing and canning plants.

It should be noted that the statistics given in appendices I, J, and K and L do not mention "exports" of fresh fish from Nouadhibou across the border into the former Spanish Sahara. These shipments are simply listed under landings. Also, Mauritania statistics do not mention fishery imports; 1,931 t of frozen tuna should be listed as "imports" since they were landed by Spanish freighters for processing by IMAPEC; these "imports" however, are listed as "landings" in Mauritania fishery statistics.

B. Trading Partners

Japan is the most important buyer of Mauritania fishery products. In 1974, Japan bought a total of 37.5 percent of all Mauritania fishery exports by value ($5.2 million) (table 9 and app. I). No Mauritania fishery products were exported to the United States in 1974. Exports to Japan consisted of frozen fish and presumably included the bulk of MAFCO's and SOFRIMA's output with some additional purchases from IMAPEC. None of the statistics give exports by individual firms to different countries. Italy was Mauritania's second most important customer in 1974. Exports to Italy included frozen fish,



YEAR	QUANTITY	YEAR	QUANTITY
	1,000 mt		1,000 mt
1961	3,147	1968	10,783
1962	2,683	1969	12,421
1963	4,279	1970	20,640
1964	4,588	1971	19,447
1965	6,515	1972	33,834
1966	7,494	1973	27,220
1967	11,044	1974	28,015

Figure 33.--Mauritania fishery exports, 1961-74.
Source: Banque Centrale des Etats de l'Afrique de l'Ouest, L'Economie Ouest Africaine, No. 189, November 1971 (data from 1961-70); various preliminary trade statistics (1971-73), and Laboratoire des Pêches, Bulletin du Laboratoire des Pêches de Nouadhibou, Direction des Pêches, Ministère du Developpement Industriel, No. 3., December 1974, p.171 (for 1974). Data from 1971 to 1973 are considered preliminary.

Table 10.--Mauritania fishery exports by country, quantity, and value, 1974

Country	Quantity		Value	
	1,000T	Percent	US$1,000	Percent
Japan	10.5	37.5	5,190	31.1
Italy	4.4	15.7	4,756	28.5
Spain	5.1	18.3	2,751	16.5
W. Germany	5.5	19.7	1,895	11.4
Zaire	1.0	3.5	1,150	6.9
Other	1.5	5.3	940	5.6
Total[1/]	28.0	100.0	16,682	100.0

1/Totals may not agree because of rounding.
Source: Laboratoire des Pêches. Direction des Pêches. Ministère de Developpement Bulletin du Laboratoire des Pêches de Nouadhibou, December 1974, p.171.

canned tuna, and a small amount of mullet roe. Spain was Mauritania's third most important market--mostly frozen fish, salted-dried fish, fish meal, and canned tuna---followed by West Germany where a large quantity of fish meal was exported during 1974. Most Mauritania exports of salted-dried fish went to Zaire and to the Congo (Brazzaville). Great Britain was the principal purchaser of fish oil, fresh fish, and lobsters. The bulk of Mauritania production of mullet roe went to France. Appendices Jand K provide data on Mauritania fishery exports by country and commodity.

3. Exporting Companies

IMPAEC was the leading exporter, with 10,600 t of fishery products valued at $8 million. The major IMPAEC exports were $36 million worth of frozen fish and $3.4 million worth of canned tuna. MAFCO was the second leading exporter with 6,600 t of frozen fish worth $3.1 million. SOMIP followed with combined exports of 2,800 t of fish meal and fish oil; SOFRIMA exported 2,700 t of frozen fish; SIGP exported 1,200 t of frozen fish, salted-dried fish, fresh fish, and mullet roe; EGA exported over 400 t of salted-dried fish, frozen fish, frozen fish, fresh fish, and lobsters; SOBRYFLOT--believed to be a part of the Soviet fishing fleet operation--is listed as having exported 350 t of frozen fish; CIPRIANO exported less than 100 t of salted-dried fish. In addition, the Banque Centrale de Mauritanie was listed as being the exporter of over 3,200 t of fish meal reportedly produced by SOMIP in 1972. Appendix L provides the quantity and value of fishery exports in 1974 by individual exporter and by commodity.

XVI.--TRADE OPPORTUNITIES

The U.S. Embassy in early March 1976 reported on the export market in the Mauritania fisheries sector for American businessmen, noting:

> "Emphasis should be placed on offering management contracts, selling of technical services, providing expertise in the establishment of Mauritanian-owned fishing fleets or industries, sale of fisheries equipment, and construction of turnkey plants."

Export opportunities for U.S. fisheries technology appear good, but somewhat limited. Many of the fish meal and freezing plants employ very sophisticated machinery, presenting opportunities for long-range equipment replacement programs. As more and more vessels begin using the port at Nouadhibou, the need for additional equipment will increase. There are also export markets for the sale of port facilities such as ice delivery systems, fish pumps, fuel systems, cranes. The ship repair field also offers a small potential market for development. Mauritania will also require fishing gear and vessel parts and equipment in the next few years, and this also provides interested United States business firms with a potential market.

All potential American business representatives, however, are strongly advised to contact the United States Embassy in Nouakchott before attempting to contact any government official in Mauritania. Inquiries not directed first to to the U.S. Embassy will not receive serious consideration by Mauritania firms. Those seeking information or assistance should write:

> Economic and Commercial Officer
> Embassy of the United States of America
> Nouakchott, Islamic Republic of Mauritania

Interested American business representatives are also cautioned to expect lengthy delays in receiving replies to correspondence, often amounting to several months or more. Agreement on a project can seldom be reached on the basis of one visit to Mauritania. Normally several visits and considerable followup are required to consummate any deal. Business proposals should be written in French. Those prepared in English will receive little or no attention.

Potential exporters are also warned, in advance, that the Mauritania Government, having experienced several disastrous experiences with poorly planned or managed fishery programs, will request that the United States Government check on the bona fides of all exporters in order to assure themselves of receiving quality products.

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XVIII. ACKNOWLEDGEMENTS

The authors would like to express their appreciation to the many people who helped in the preparation of this report. Special thanks are due to Ambassador Holsey G. Handyside and to the Deputy Chief of Mission, David H. Shinn of the United States Embassy in Nouakchott for their serious and active participation in the RFA's visit. Mr. Shinn was also of great assistance in reviewing the report and checking the many technical details. The Chef de la Circonscription Maritime de Nouadhibou, Mr. Brahim Ould Dherat was particularly helpful to the RFA during his visit to Mauritania. Mr. Brahim personally escorted the RFA to every factory in Nouadhibou and spent countless hours patiently explaining Mauritania's fisheries to the RFA. Thanks are also due to Mr. Athie Mohamed, Deputy Governor for Economic Affairs and to Hamada Ould Zein, Governor of the Nouadhibou Region for their interest, time, and information. Finally, special thanks are due to Mr. Zvonimir Grče and his wife for their hospitality and guidance. The authors would also like to thank Mr. Elwood A. Seaman of the Department of the Interior and Philip C. Pierce of the U.S. Army Corps of Engineers for the many fine pictures they provided on freshwater fisheries in the Senegal River Basin.

Appendix A.--Mauritania fishery landings at the port of Nouadhibou by foreign and national fleets, 1974

Country	Product Form							Total
	Fresh	Frozen	Canned	Salted-dried	Lobster	Roe	Fish Meal	
	Metric tons							
France	-	2	-	17	15	-	-	34
Japan	-	11,739	-	233	-	-	90	12,062
Kuwait	-	148	-	-	-	-	-	148
Mauritania								
Imraguens	-	-	-	1,336	-	6	-	1,342
Pirogue	1,034	1,637	2	411	-	-	465	3,549
Netherlands	-	-	-	-	-	-	10,374	10,374
Norway								
Astra	-	-	-	-	-	-	8,508	8,508
Norglobal	-	-	-	-	-	-	2,490	2,490
Spain								
Canary	1	1,521	360	3,297	-	-	9,425	14,604
Sahara	-	137	48	181	-	-	7,404	7,770
Tuna imports	-	-	1,931	-	-	-	-	1,931
Trawler fleet	-	415		8	-	-	234	657
USSR	-	5,514	522	124	-	-	394	6,554
Total	1,035	21,113	2,863	5,607	15	6	39,384	70,023

Source: Laboratoire des Pêches. Direction des Pêches. Ministère du Developpement Industriel. Bulletin du Laboratoire des Pêches de Nouadhibou, No. 3, December, 1974, p. 166.

Appendix B.--Mauritania landings and average exvessel prices at the port of Nouadhibou by commodity and species, 1974

Product Destination	Landings	Average Price1/
	Metric tons	US$/kg
FRESH		
Breams, groupers, mullets, soles, sea trouts, and other fish	1,034	NA
Total fresh	1,034	NA
FROZEN		
Octopus	13,854	0.24 to 0.27
Cuttlefish	1,806	.29 to .38
Smoothhound	1,662	.22
Squid	1,149	.59 to .66
Pink seabream	509	.18
Sea trout	427	.25
Grouper	294	.30
Meager	244	.21
Soles	182	.43
Halibut	175	.18
Black sole	153	.26
Tambour	113	.09
Kingfish	99	.18
Dab	81	.18
Hake	47	.20
Royal seabream	46	.57
Bluefish	34	.07
Mullet	22	.05
Striped bream	21	.12
Rays	19	.08
Other fish	176	NA
Total frozen	21,113	NA
SALTED-DRIED		
Meager	2,323	.20 to .22
Cod	2,108	.07 to .09
Hake	563	.17 to .22
Smoothhound	276	.19 to .23
Mullet	212	.07 to .13
Halibut	125	.14 to .20
Total salted-dried	5,607	NA
CANNED2/		
Skipjack tuna	1,309	.60
Yellowfin tuna	760	.93
Atlantic little tuna	464	.12
Plain bonito	239	.29
Kingfish	91	.07
Total canning	2,863	NA
FISH MEAL AND FISH OIL		
Sardines, jack mackerel, grunts, tambours, bluefish, mullets, and fish wastes	39,384	.03 to .08
Total fish meal and oil	39,384	.03 to .08
OTHER		
Spiny lobsters, live	15	4.55
Fish roe (poutargue)	6	4.87
Other	1	NA
Total other	22	NA
TOTAL LANDINGS	70,023	NA

1/ Exvessel prices based on an exchange rate of US$1.00 = 44.00 Ouguiya.
2/ Includes 1,931 t of tuna species landed by Spanish refrigerated reefers, presumably from catches made in other waters and probably imported into the country.

Source: Laboratoire des Pêches. Direction des Pêches. Ministère du Developpement Industriel. Bulletin du Laboratoire des Pêches de Nouadhibou, No.3, December 1974, p. 168-169.

Appendix C.--Catch of the Astra expedition off West Africa, monthly catch statistics by species groups in percent and tons, 1971

Month	Area Of Operations	Sardinella		Horse Mackerel[1/]		Chub Mackerel		Total
		Quantity	Percent	Quantity	Percent	Quantity	Percent	Quantity
		metric tons		metric tons		metric tons		metric tons
Jan	Cap Timiris/Nouakchott	1,970.8	30	4,598.7	70	-	-	6,569.5
Feb	Nouakchott/St. Louis	1,748.8	10	3,497.7	20	12,241.7	70	17,488.2
Mar	Nouakchott/Senegal/Bissau	3,425.4	20	5,138.1	30	8,563.4	50	17,126.9
Apr	Senegal/Gambia	5,975.6	40	2,987.9	20	5,976.6	40	14,939.1
May	Cap Timiris/St. Louis/Senegal	4,323.4	50	4,323.3	50	-	-	8,646.7
Jun		-	-	-	-	-	-	-
Jul		-	-	-	-	-	-	-
Aug	Cap Blanc	382.6	95	-	-	20.1	5	402.7
Sep	Spanish Sahara/Cap Blanc	10,902.1	95	-	-	573.8	5	11,475.9
Oct	Spanish Sahara/Cap Blanc/Cap Timiris	9,929.2	50	9,929.2	50	-	-	19,858.4
Nov	Spanish Sahara/Cap Blanc/Cap Timiris	966.8	10	8,218.1	85	483.4	5	9,668.3
Dec	Spanish Sahara/Cap Blanc/Nouakchott	402.0	20	1,407.0	70	201.0	10	2,010.0
Total		40,026.7	37	40,100.0	37	28,060.0	26	108,185.6

1/ Trachurus trachurus, T. trecas, and Caranx rhonchus.

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Appendix D.--Catch of the Norglobal expedition off West Africa, by month and species, December 1970, 1971

Month	Area Of Operations	Species					Total Quantity	Trawls	Average Catch Per Trawl
		Horse mackerel[1/]	Yellow mackerel[2/]	Sardinella[3/]	Chub mackerel[4/]	Other[5/]			
		metric tons						number	metric tons
1970									
Dec	Nouakchott	3,391.0	-	1,899.3	-	-	5,290.3	46	115.0
1971									
Jan	Nouakchott	9,196.9	-	-	-	-	9,196.9	80	114.9
Feb	Nouakchott/St. Louis	12,786.8	-	265.0	-	-	13,051.8	111	117.6
Mar	Cap Timiris/Nouakchott/Senegal	5,107.6	4,165.5	6,069.9	164.2	-	15,507.2	125	124.1
Apr	Senegal/Gambia	998.2	3,825.5	3,606.7	1,523.0	-	9,953.4	95	104.8
May	Cap Timiris/Senegal/Gambia	-	1,174.5	2,328.5	921.6	-	4,424.6	59	74.9
Jun									
Jul									
Aug	Cap Blanc	79.9	-	1,876.9	-	266.0	2,222.8	35	63.5
Sep	Cap Blanc/Spanish Sahara	1,207.9	-	8,689.2	576.5	-	10,473.6	89	117.7
Oct	Cap Timiris/Cap Blanc/Spanish Sahara	3,649.2	-	7,597.7	-	-	11,246.9	96	117.2
Nov	Cap Timiris/Cap Blanc/Spanish Sahara	8,857.1	273.1	853.8	2,216.7	-	12,200.7	134	91.1
Dec	Cap Timiris/Cap Blanc/Spanish Sahara	924.8	-	290.5	3,325.2	-	4,540.5	56	81.1
Total, 1971		42,808.4	9,438.6	31,578.2	8,727.2	266.0	92,818.4	880	105.5

1/ Trachurus Trachurus and T. trecas. 2/ Caranx rhonchus. 3/ Sardinella aurita and S. eba. 4/ Scomber colias. 5/ Euthynnus alletteratus.

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Appendix E.--Catch of the Norglobal expedition off West Africa, catch by month and species, 1972

Month	Area Of Operations	Species					Total Quantity	Trawls	Average Catch Per Trawl
		Horse mackerel[1]	Yellow mackerel[2]	Sardinella[3]	Chub mackerel[4]	Other[5]			
		metric tons						number	metric tons
Jan	Cap Timiris/Nouakchott	9,681.1	-	1,733.8	124.1		11,539.0	105	109.9
Feb	Nouakchott/Senegal/Gambia	1,299.6	80.7	12,323.4	-	647.7	14,351.4	122	117.6
Mar	Senegal/Gambia	-	338.6	8,650.7	818.6	-	9,807.9	99	99.1
Apr	St. Louis/Senegal/Gambia	232.2	824.9	14,151.9	-	-	15,209.0	124	122.7
May	St. Louis/Senegal/Gambia	78.2	-	7,293.9	-	90.4	7,462.5	79	94.4
Jun[6]	Cap Timiris/Nouakchott	-	-	687.3	-	-	687.3	14	49.1
Jul	Cap Timiris/Nouakchott	-	-	2,420.9	-	145.2	2,566.1	31	82.8
Aug	Cap Timiris	-	-	834.2	10.6	20.9	865.7	14	61.8
Sep	Cap Blanc	950.2	-	714.9	703.1	-	2,368.2	34	69.7
Oct									
Nov				Data not received					
Dec									
Total, 1972		12,241.3	1,244.2	48,811.0	1,656.4	904.2	64,857.1	622	104.3

1/ Trachurus trachurus and T. trecas. 2/ Caranx rhonchus. 3/ Sardinella aurita and S. eba. 4/ Scomber colias. 5/ Various species: Feb Mixed small fish, May Tuna (not specified), Jul Euthynnus alletteratus (47.2 tons), Pomatomus saltatrix (98.0 tons), Aug Pomatomus saltatrix. 6/ During the first half of June, fishing also took place off Las Palmas in the Canary Islands. During the second half of the month, only a reduced number of the Norglobal's purse seiners were operating.

Ostvedt, O.J., Report on the Norwegian pelagic fishery off West African 1970 and 1971. Paper presented to CECAF Working Party on Resources Evaluation, Rome, 14-20 April 1972. In FAO. "Report on the Second Session of the Fishery Committee for the Eastern Central Atlantic (CECAF) Working Party on Resource Evaluation," FAO Fisheries Report No. 158, Rome, 1975, p. 83.

Appendix F.-- Fishery landings at Nouadhibou by processing companies and by finished product form, 1974

Processing Companies[1]	Commodity							Total
	Fresh	Frozen	Canned	Salted-dried	Lobster	Roe	Fish Meal	
	Metric tons							
IMAPEC	-	9,075	2,863	2,634	-	-	12,143	26,724
SOMIP	-	-	-	-	-	-	18,215	18,215
INSAMARTA	-	-	-	-	-	-	8,477	8,477
SOFRIMA	-	6,602	-	-	-	-	-	6,602
MAFCO	-	5,011	-	-	-	-	-	5,011
SIGP	-	241	-	2,591	-	6	-	2,838
OSMAR	-	-	-	-	-	-	549	549
EGA	-	184	-	278	15	-	-	477
CIPRIANO	1	-	-	95	-	-	-	96
Local Markets	1,034	-	-	-	-	-	-	1,034
Total	1,035	21,113	2,863	5,607	15	6	39,384	70,023

1/ The full names of these companies are given in Appendix H.

Source: Laboratoire des Pêches. Direction des Pêches. Ministère du Developpement Industriel. Bulletin du Laboratoire des Pêches de Nouadhibou, No. 3, December, 1974, p. 167.

Appendix G.--Mauritania fishery landings at the port of Nouadhibou for delivery to local firms for processing by foreign and domestic vessels, 1974

Country	Company										Total
	IMAPEC	SOMIP	INSAMARTA	SOFRIMA	MAFCO	SIGP	OSMAR	EGA	CIPRIANO	Local Markets	
	Metric tons										
France	-	-	-	-	-	-	-	34	-	-	34
Japan	687	-	-	6,145	5,011	189	-	30	-	-	12,062
Kuwait	-	-	-	148	-	-	-	-	-	-	148
Mauritania											
Imraguens	-	-	-	-	-	1,284	-	58	-	-	1,342
Piroguel/	2,465	-	-	-	-	23	-	27	-	1,034	3,549
Netherlands	1,322	7,217	1,566	-	-	-	269	-	-	-	10,374
Norway											
Astra	-	8,508	-	-	-	-	-	-	-	-	8,508
Norglobal	-	2,490	-	-	-	-	-	-	-	-	2,490
Spain											
Canary	12,558	-	-	-	-	1,342	280	328	96	-	14,604
Sahara	859	-	6,911	-	-	-	-	-	-	-	7,770
Tuna imports	1,931	-	-	-	-	-	-	-	-	-	1,931
Trawler fleet	657	-	-	-	-	-	-	-	-	-	657
USSR	6,245	-	-	309	-	-	-	-	-	-	6,554
Total	26,724	18,215	8,477	6,602	5,011	2,838	549	477	96	1,034	70,023

1/ Senegalese and Beninian fishermen residing in Mauritania.

Source: Laboratoire des Pêches. Direction des Pêches. Ministère du Developpement Industriel. Bulletin du Laboratoire des Pêches de Nouadhibou, No. 3, December, 1974, p. 167.

Appendix H--Mauritanian Companies, 1974

Acronym	Company Name	Type of Company	Administration	Address	Foreign Involvement	Number of Vessels	Total GRT
	Africa Pêche	Freezing	Owner: Emile Beck				
ALMAP	Société Algero-Mauritanienne de Pêche	Fishing	Director General and President: Bamba ould Yezid	B.P. 47 Nouadhibou	Algeria	4	
APRANCO		Fishing			none	2	
COMIP	Compagnie Mauritanienne des Industries des Pêches	Fishing and freezing	Director General: Ahmed ould Megaya	B.P. 598 Nouakchott	Italy	13	
EGA	Entreprise Générale Atlantique	Fishing, drying and salting	Owner: Emile Beck	Nouadhibou	none	110	
IMAPEC	Industries Mauritaniennes de Pêche, S.A.	Freezing, canning, drying, salting & fish meal production	President: Juan Morales Sanchez	B.P. 100 Nouadhibou	Spain		
MJT	Mauritania and Japan Trading Company, Ltd.	Outfit and supply fishing vessels and export frozen fish	Financial Director: Mr. Shojiro Saeki	B.P. 267 Nouadhibou	Japan		
MAFCO	Mauritanian Fishery Co.	Freezing	Director General: Mr. Fukuda	B.P. 289 Nouadhibou	Japan		
SCAP	Société Continentale d' Armement et de Pêche	Fishing vessel sales and cold storage			Japan		
SCG							
SOBRYFLOT					USSR		
SIGP	Société Industrielle de Grande Pêche	Salting and drying	Maurice Dufey	B.P. 11 Nouadhibou			
SOFRIMA	Société de Frigorifiques de Mauritanie	Freezing	Acting Director Gen: Gherrabi Seyed	B.P. 36 Nouadhibou	Spain and Japan		
SOMAKAP	Société Mauritano-Koweitienne d' Armement et de Pêche	Fishing	M. Toure	B.P. 329 Nouadhibou	Kuwait	4	640
SOMAP	Société Mauritanienne d'Armement à la Pêche	Fishing					
SOMARIP	Société Mauritanienne d' Investissement pour la Pêche	Freezing	Owner: Emile Beck & Philippe Lagorde		France	14	
SOMAUPECO	Société Mauritanienne de Pêche et de Conserverie	Freezing	Owner: Emile Beck	Nouadhibou			
SOMIP	Société Mauritanienne des Industries de la Pêche	Fishing, freezing and fish meal and oil production	Director General: Hamoud Abdel Wedoud	B.P. 212 Nouadhibou	Norway		

1/ Round weight.

Appendix H - Mauritanian Companies, 1974

Acronym	Cold Storage Capacity	Production IN 1974	Other
		metric tons	
Africa Pêche			Closed in 1970
ALMAP			Until September 1975, ALMAP's vessels operated at only 20 to 30 percent of capacity due to lack of training of the all- Mauritanian crews. In early 1976, the company ceased operations due to differences between the Mauritanian and Algerian Governments as a result of Mauritania's annexation of the former Spanish Sahara.
APRANCO		Fresh fish 1 t Salted and dried fish 76 t 77 t	In 1974 did not operate vessel and instead bought fish and processed it. Company ceased operations in 1975.
COMIP	35 m^3		Desires contact with U.S. company interested in establishing a canning plant in Mauritania. COMIP is the only Mauritanian joint venture company without Government participation.
EGA	2,016 m^3		Ceased operations in 1974 because of legal problems involving the owner.
IMAPEC		Frozen 5,633 t Canned Tuna 2,103 t Salted and dried 370 t Fish meal 2,479 t 10,585 t	IMAPEC accounted for one-third of Mauritania's total exports of frozen fish in 1974.
MJT			MJT began operations in September, 1975.
MAFCO		Frozen fish 5,011 t	
SCAP			Ceased operations in 1968.
SCG			No information available.
SOBRYFLOT			The name of the company is unknown. The Soviet partner is the state-owned company Sovetskii Rybolovnii Flot (SOVRYBFLOT) of the USSR Fisheries Ministry.
SIGP		Frozen fish 241 t salted/dry fish 2,591 t 1/	SIGP markets the exports of IMAPEC's salted and dried fish.
SOFRIMA	1,200 t	Frozen fish 6,602 t 1/	
SOMAKAP		Frozen fish 148 t	Did not begin fishing until December 1974.
SOMAP			The assets of SOMAP were liquidated by the Mauritanian Government, after the operation was declared bankrupt in 1969.
SOMARIP			Short-lived, no data available.
SOMAUPECO	1,200 t	Frozen fish 184 t	Plant was closed after the owner fled the country.
SOMIP			SOMIP ceased operations in 1975 due to low fish meal prices.

1/ Round weight.

Appendix I.--Mauritania fisheries exports by product form, 1961-74

Year	Product Form								Total
	Fresh & frozen	Canned	Salted-dried	Lobsters	Mullet roe	Fish meal	Fish oil	Fish wastes	
	Metric tons								
1961	-	-	3,147	-	-	-	-	-	3,147
1962	2	-	2,681	-	-	-	-	-	2,683
1963	1,222	-	3,054	3	-	-	-	-	4,279
1964	1,261	-	3,306	21	-	-	-	-	4,588
1965	2,143	-	4,322	42	8	-	-	-	6,515
1966	2,157	-	4,891	66	15	-	-	365	7,494
1967	5,825	-	5,093	102	9	-	-	15	11,044
1968	5,259	-	5,474	35	15	-	-	-	10,783
1969	6,224	-	6,108	69	20	-	-	-	12,421
1970	9,442	401	6,645	51	22	3,660	249	170	20,640
1971	5,292	307	4,958	187	14	8,579	-	110	19,447
1972	18,990	1,609	4,336	105	5	7,459	-	1,330	33,834
1973	16,198	819	3,850	59	5	6,289	-	-	27,220
1974	15,650	2,103	1,713	15	6	7,834	694	-	28,015

Sources: Banque Centrale des Etats de l'Afrique de l'Ouest, L'Economie Ouest Africaine, No. 189, November 1971 (data from 1961-70); various preliminary trade statistics (1971-73), and Laboratoire des Pêches, Bulletin du Laboratoire des Pêches de Nouadhibou, Direction des Peches, Ministère du Developpement Industriel, No. 3, December 1974 (for 1974). Data from 1971 to 1973 are considered preliminary.

Appendix J.--Mauritania exports of fishery products by country and commodity, 1974

Country and Product Form	Quantity	Value1/
	Metric tons	US$1,000
Congo (Brazzaville)		
Salted-dried fish	635	400.1
France		
Fresh fish	34	43.4
Mullet roe	5	41.0
Live lobsters	15	106.8
Total	54	191.2
Gabon		
Salted-dried fish	4	3.2
Great Britain		
Fish oil	694	315.7
Italy		
Frozen fish	2,492	1,538.9
Canned tuna	1,917	3,212.9
Mullet roe	negl.	4.5
Total	4,409	4,756.2
Japan		
Frozen fish	10,502	5,190.3
Morocco		
Frozen fish	51	28.2
Spain		
Frozen fish	2,571	1,757.9
Salted-dried fish	76	26.7
Fish meal	2,479	944.2
Canned tuna	13	22.2
Total	5,139	2,751.0
Switzerland		
Mullet roe	negl.	1.4
West Germany		
Fish meal	5,355	1,687.5
Canned tuna	173	207.8
Total	5,528	1,895.2
Zaire		
Salted-dried fish	998	1,149.5
Total Exports2/	28,015	16,681.8

1/ Based on an exchange rate of US$1.00 = 44.00 Ouguiya.
2/ Totals do not agree owing to rounding.

Source: Laboratoire des Pêches. Direction des Pêches. Ministère du Developpement. Bulletin du Laboratoire des Pêches de Nouadhibou, December 1974.

Appendix K.--Mauritania exports of fishery products by commodity and country, 1974

Product Form and Country	Quantity	Value1/
	Metric tons	US$1,000
Frozen		
Japan	10,502	5,190.3
Spain	2,571	1,757.9
Italy	2,492	1,538.9
Morocco	51	28.2
Total	15,616	8,515.3
Fish meal		
West Germany	5,355	1,687.5
Spain	2,479	944.2
Total	7,834	2,631.6
Canned		
Italy	1,917	3,212.9
West Germany	173	207.8
Spain	13	22.2
Total	2,103	3,442.8
Salted-dried		
Zaire	998	1,149.5
Congo (Brazzaville)	635	400.1
Spain	76	26.7
Gabon	4	3.2
Total	1,713	1,579.4
Fish oil		
Great Britain	694	315.7
Fresh fish		
France	34	43.4
Lobster		
France	15	106.8
Mullet roe		
France	5	41.0
Italy	negl.	4.5
Switzerland	negl.	1.4
Total	6 2/	46.8
Total Exports2/	28,015	16,681.8

1/ Based on an exchange rate of US$1.00 = 44.00 Ouguiya.
2/ Totals do not agree owing to rounding.

Source: Laboratoire des Pêches. Direction des Pêches. Ministère du Developpement Industriel. Bulletin du Laboratoire des Pêches de Nouadhibou No. 3, December 1974.

Appendix L.--Mauritania exports of fishery products by exporting firm and commodity, 1974

Country and Product Form	Quantity	Value1/
	Metric tons	US$1,000
IMAPEC		
Frozen	5,633	3,622.8
Fish meal	2,479	944.2
Canned	2,103	3,442.8
Salted-dried	370	419.3
Total	10,585	8,429.1
MAFCO		
Frozen	6,622	3,098.2
Banque Centrale de Mauritanie2/		
Fish meal	3,240	930.5
SOFRIMA		
Frozen	2,705	1,392.8
SOMIP/ASTRA		
Fish meal	2,115	756.9
SIGP		
Salted-dried	980	902.8
Frozen	190	121.5
Fresh fish	14	21.0
Mullet roe	6	46.8
Total	1,190	1,092.1
COMAPIC3/		
Fish oil	694	315.7
EGA		
Salted-dried	288	230.6
Frozen	110	71.0
Lobster	15	106.8
Fresh fish	7	2.5
Total	419	411.0
SOBRYFLOT4/		
Frozen	354	209.0
CIPRIANO		
Salted-dried	76	26.7
SCG5/		
Fresh fish	13	19.9
Total Fxports6/	28,015	16,681.8

1/ Based on an exchange rate of US$1.00 = 44.00 Ouguiya.
2/ Presumably fish meal produced by SOMIP/COMAPIC in 1972.
3/ It is not certain why COMAPIC is shown, since it went out of business at the end of 1972 when its Director General fled the country.
4/ Presumably Soviet fleet exports.
5/ No information on this firm.
6/ Totals may not agree owing to rounding.

Source: Laboratoire des Pêches, Bulletin du Laboratoire des Pêches de Nouadhibou, Direction des Pêches, Ministère du Developpement Industriel, No. 3, December 1974

Appendix M.--Listing of fish species caught in Mauritania waters

Latin	English	French
	A	
Argyrosoma hololepidotum	Corvina	
Argyrosomus regius	Meagre	Courbine, maigre
Arius spp.	Marine catfish	Machoiron
	B	
Bathysolea polli	Sole	Sole noire
Bothidae spp.	Flatfish	
	C	
Caranx spp.	Scad	Chincard
Citharus macrolepidotus	Sand dab	Limande, cordine
Conger spp.	Conger eel	Congre
Coryphaena hippurus	Dorado	Coryphere
Cybium tritor	Kingfish	Maquereau-bonite
Cynoglossus senegalensis	Tongue sole	Sole langue
	D	
Dasytis spp.	Sting rays	Pastenague
Dentex spp.	Dentex	Dente
Diagramma mediterraneum	Grunter	Diagramme
Dicologoglossa cuneata	Sole	Sole
Diplodus spp.	Tambour	Sar
Drepane spp.	Spadefish	Poisson papillon
	E	
Engraulis spp.	Anchovy	Anchois
Epinephelus acnus	White grouper	Tiof
Epinephelus spp.	Groupers	Merou
Ethmalosa spp.		Ethmalose
Euthynnus alleteratus	Atlantic little tuna	Thonine
	G	
Gymnura spp.	Ray	Raie-aigle
	K	
Katsuwonus pelamis	Skipjack	Thon listao
	L	
Leptocharias smithii	Congo shark	Requin
Lichia amia	Leerfish	Liche
Lichia vadigo	Leerfish	Liche
Lithognathus mormyrus	Striped bream	Marbe
Loligo vulgaris	Thick-mantled squid	Encornet
Lophius spp.	Anglerfish	Baudroie, lotte
	M	
Merluccius cadenati	Mauritanian hake	Merlu
Merluccius spp.	Hake	Merlu
Morone punctata	Sea trout	Truite de mer
Mguil auratus	Black mullet	Mulet
Mguil cephalus	Flathead grey mullet	Mulet jaune
Mguil monodi	Mullet	Mulet
Mguil saliens	White mullet	Mulet
Mullus surmuletus	Red mullet	Rouget de roche
Mustelus canis	Smooth dogfish	
Mustelus mustelus	Smooth-hound	Emisole
Mycteroperca spp.	Grouper	

Latin	English	French
	O	
Octopus vulgaris	Octopus	Pulpe
Orcynopsis unicolor	Plain bonito	Palomete
	P	
Pagellus spp.	Pandora	Pageot
Pagrus spp.	Seabream	Dorade rose pagre
Panulirus mauritanicus	European spiny lobster	Langouste rose
Panulirus regius	Green spiny lobster	Langouste verte
Paragaleus pectoralis	Dogfish	Chien de mer
Pargus auriga	Seabream	Dorade rayee
Penaeus spp.	Shrimp	Crevette
Pomadasys incisus	Grunter	Grondeurs
Pomadasys jubelini	Grunter	Grondeurs
Pomadasys rogeri	Grunter	Grondeurs
Pomatomus saltatrix	Bluefish	Tassergal, coupe-fil
Psettodes spp.	Halibut	Fletan
Pseudotolithus spp.	West African croaker	Capitaine, ombrine
Pteromylacus spp.	Ray	Rale
	R	
Raja spp.	Skates	Raie
Rhinobatos spp.	Guitar ray	Raie-guitare
Rhinoptera spp.	Ray	Raie
Rhizopriodon acutus	Dogfish	Chien de mer
	S	
Sardinella aurita	Pound sardine	Sardinelle ronde
Sardinella eba	Flat sardine	Sardinelle plate
Sardinella pilcharduc	Pilchard	Sardine
Sarpa salpa		Saupe
Sciaena umbra	Croaker	Vieille noire
Scorpaena	Scorpionfish	Rascasse
Scyliorhinus canicula	Small spotted dogfish	Roussette
Sepia spp.	Cuttlefish	Seiche
Solea azevia	Blue sole	Sole
Solea lascavis	Ling sole	Sole
Solea senegalenis	Sole	Sole
Sparides pristo-pomatides	Dolphinfish	
Sparus auratus	Gilthead bream	Dorade royale
Sphyraena spp.	Barracuda	Brochet de mer
Stromateus fiatola	Butterfish	Hirondelles
Synaptura lusitania	Sole	Sole perdrix
	T	
Thunnus albacares	Yellowfin tuna	Thon albacore
Torpedo spp.	Electric rays	Torpille
Trachinus spp.	Weever	Vive
Trachurus trachurus	Atlantic horse mackerel	Chinchard
Trigla	East Atlantic gurnard	Rouget, grondin
	U	
Umbrina canariensis	Corb	Ombrine
	Z	
Zeus faber	John Dory	Saint-Pierre

Sources: Bulletin du Laboratoire des Pêches de Nouadhibou, Laboratoire des Pêches, Direction des Pêches, Ministère du Developpement Industriel; FAO, Yearbook of Fishery Statistics, 1973 (Vol. 36); UNDP/FAO, Local French Names of West African Marine Fishes, Regional Fisheries Survey in West Africa, Report No. 70/3, Abidjan, Ivory Coast, April 1970, and other sources. The English and Latin names for various fish were obtained, by and large, from Spanish or French names used commonly in Mauritania. As these names vary, by species and/or region, it is possible that erroneous information was obtained. For example, the French name of "maquereau-bonite" is translated in one source as Cybium tritor; in another source as Scomberomorus maculatus.

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